



Ref: 8451

August 3, 2021

Arlington Zoning Board of Appeals Town of Arlington 730 Grove Street Arlington, MA 02476

Re: Revised Traffic Analysis and Response to ZBA Comments

Thorndike Place Development Changes

Dear Zoning Board of Appeals:

Vanasse & Associates, Inc. (VAI) has prepared this letter in order to respond to comments from the Arlington Zoning Board of Appeals (ZBA) regarding the revisions to the proposed Thorndike Place development changes (the "Project"). The development program now consists of townhouses and senior independent living residences. VAI was requested to provide updated trip-generation calculations, updated capacity analyses, parking demand calculations, and emergency response vehicle truck turning figures for the current development program. The following provides a summary of the requested updated calculations and analyses.

TRIP-GENERATION

The current proposed development program calls for the construction of 12 townhouse units and 124 senior housing independent living units. In order to develop the traffic characteristics of the proposed Project, tripgeneration statistics published by the Institute of Transportation Engineers (ITE)¹ for Land Use Code (LUC) 220, Multifamily Housing (Low-Rise) and LUC 252, Senior Adult Housing - Attached were used.

The ITE trip estimations were then utilized in conjunction with mode split percentage from U.S. Census data in order to provide an estimate of person trip generation for the Project. The mode split data were obtained from U.S. Census and American Community Survey for Census Tract 3561, the census tract in which the project is located. The mode split data from the census are provided in Table 1.

¹Trip Generation, 10th Edition; Institute of Transportation Engineers; Washington, DC; 2017.

Table 1 MODE SPLIT DATA

Mode	Census Tract 3561 Mode Splits ^a (Percentage)
Single Occupancy Vehicle	43
High Occupancy Vehicle Transit Bike	11 32 6
Walk Other	0 8
TOTAL	100

^aFrom from American Community Survey 2018 5-year estimates for Census Tract 3561.

The mode split data was then applied to the ITE trip-generation projections for the townhouse units to determine the trips by mode. A summary of the expected site-generated trips by mode is provided in Table 2 for the townhouse units (LUC 220).

Table 2 TRIP-GENERATION SUMMARY: TOWNHOUSES

Time Period/ Directional Distribution	Townhouses Vehicle Trips ^a	Townhouses Person Trips ^b	SOV Trips 43%	HOV Trips 11%	Transit Trips 32%	Bike Trips 6%	Walk Trips 0%	Other Trips 8%	Townhouses Total Vehicle Trips ^c
Weekday Daily	88	100	43	11	32	6	0	8	48
Weekday Morning Peak Hour:									
Entering	1	1	1	0	0	0	0	0	1
Exiting	<u>5</u>	<u>6</u>	<u>2</u>	<u>1</u>	$\frac{2}{2}$	0	0	<u>1</u>	<u>3</u>
Total	6	7	$\frac{2}{3}$	1	2	0	$\frac{0}{0}$	1	4
Weekday Evening Peak Hour:									
Entering	4	5	2	1	2	0	0	0	3
Exiting	3	<u>3</u>	<u>1</u>	0	<u>1</u>	$\frac{0}{0}$	$\frac{0}{0}$	<u>1</u>	<u>1</u>
Total	7	<u>3</u> 8	3	1	$\frac{1}{3}$	0	0	1	4

^aBased on ITE LUC 220, Multifamily Housing (Low-Rise); 12 units.

The trips anticipated to be generated by the senior housing units were also adjusted to account for utilization of different modes of transportation. The Town's Peer Review consultant commented that the use of the census tract mode shares is unreasonable for the senior housing land use. VAI respectfully disagrees with this opinion and notes that the transit services and multi-use pathways in close proximity to the site will



^bITE vehicle trips multiplied by VOR from American Community Survey 2018 5-year estimates for Census Tract 3561; VOR = 1.13.

SOV+HOV persons trips divided by VOR from American Community Survey 2018 5-year estimates for Census Tract 3561; VOR = 1.13.

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encourage the use of alternative transportation. The Applicant will promote the site's access to alternative transportation facilities (Minuteman Bikeway, Alewife Station) in advertising materials for the site and some prospective residents are likely to choose the development precisely because of its location near these facilities. To address the peer reviewer's concerns, it was assumed that the senior housing units would have a non-auto mode split only equal to half of that indicated by the census tract data. The census tract indicates a non-auto mode share of 46 percent; therefore, a 23 percent adjustment was taken for the senior housing units for non-auto use. The adjusted trip generation for senior housing units (LUC 252) is provided in Table 3.

Table 3
TRIP-GENERATION SUMMARY:
SENIOR HOUSING-INDEPENDENT LIVING

Time Period/ Directional Distribution	Senior Housing Total Trips ^a (124 Units)	Senior Housing Non-Auto Trips ^b	Senior Housing Auto Trips ^c
Weekday Daily	474	110	364
Weekday Morning Peak Hour: Entering Exiting Total	9	2	7
	<u>16</u>	<u>4</u>	<u>12</u>
	25	6	19
Weekday Evening Peak Hour: Entering Exiting Total	18	5	13
	<u>14</u>	<u>3</u>	<u>11</u>
	32	8	24

^aBased on ITE LUC 252, Senior Adult Housing – Attached.

The overall expected site-generated vehicle trips are summarized in Table 4 and graphically depicted on Figures 8RR and 9RR.



^bAssumed that senior housing mode split for non-auto would be half of what Census Tract 3561 indicates (46 percent); Senior housing non-auto mode split = 23 percent.

^bSenior housing auto mode split = 77 percent.

Fransportation Impact Assessment - Thorndike Place - Arlington, Massachusett

Figure 8RR Site Generated

Site Generated Weekday Morning Peak Hour Traffic Volumes

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Figure 9RR

Site Generated Weekday Evening Peak Hour Traffic Volumes

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Table 4
TOTAL VEHICLE-TRIP-GENERATION SUMMARY

Townhouses Vehicle Trips ^a	Senior Housing Vehicle Trips ^b	Project- Generated Vehicle Trips
48	364	412
1	7	8
<u>3</u>	<u>12</u>	1 <u>5</u> 23
4	19	23
3	13	16
<u>1</u>	<u>11</u>	<u>12</u>
$\overline{4}$	24	12 28
	Vehicle Trips ^a 48 1 3 4	Vehicle Trips ^a Vehicle Trips ^b 48 364 1 7 3 12 4 19

^aFrom Table 2.

As can be seen in Table 4, the Project is expected to generate 412 vehicle trips on an average weekday (two-way, 24-hour volume), with 23 vehicle trips (8 entering and 15 exiting) expected during the weekday morning peak hour and 28 vehicle trips (16 entering and 12 exiting) expected during the weekday evening peak hour.

The trip generation of the 176-unit apartment complex program evaluated in the November 2020 Transportation Impact Assessment (TIA) for Thorndike Place is listed in Table 5 for comparison to the current development program.

Table 5
PROJECT-GENERATED VEHICLE-TRIP-GENERATION COMPARISON

Time Period/ Directional Distribution	Current Program Vehicle Trips ^a	Previous Program Vehicle Trips ^b	Increase/Decrease Vehicle Trips	Increase/Decrease Percent
Weekday Daily	412	430	-18	-4
Weekday Morning Peak Hour:				
Entering	8	7	+1	
Exiting	15 23	<u>20</u>	<u>-5</u>	<u>==</u>
Total	23	27	-4	-15
Weekday Evening Peak Hour:				
Entering	16	20	-4	
Exiting	<u>12</u>	<u>13</u>	<u>-1</u>	<u></u>
Total	28	33	-5	-15

^aFrom Table 4.



^bFrom Table 3.

^bFrom November 2020 TIA for Thorndike Place.

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Based on the ITE data comparison, the Project is expected to generate less vehicle trips than the previously proposed development. The 2027 Build weekday morning and evening peak-hour traffic volumes are graphically depicted on Figure 10RR and 11RR.

ANALYSIS RESULTS

An updated level-of-service analysis was conducted for 2027 Build conditions using the ITE data for the currently proposed program. Table 6 and Table 7 provide a summary of the updated analysis as well as a comparison to the previous programs 2027 No-Build and 2027 Build conditions level of service for unsignalized and signalized study area intersections, respectively.

Unsignalized Intersection Analysis Results

As shown in Table 6, the updated level-of-service analysis indicates that traffic operations did not change significantly compared to the No Build condition with no change in critical movement level of service over 2027 No-Build conditions or the previously proposed Build program.



Figure 10RR

ransportation Impact Assessment - Thorndike Place - Arlington, Massachusett

Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.



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Figure 11RR

ransportation Impact Assessment - Thorndike Place - Arlington, Massachusett

Vanasse & Associates inc

Note: Imbalances exist due to numerous curb cuts and side streets that are not shown. Not To Scale

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Table 6 UNSIGNALIZED INTERSECTION CAPACITY ANALYSIS SUMMARY

	2027	2027 No-Build: Previous Program	revious 1	Program	2027	2027 Build: Previous Program	evious Pro	gram	2027	2027 Build: Current Program	irrent Pro	gram
Unsignalized Intersection/ Critical Movement/Peak Hour	V/Ca	Delay ^b	Γ OS $_{\circ}$	Queue ^d (feet)	A/C	Delay	TOS	Queue (feet)	V/C	Delay	TOS	Queue (feet)
Lake Street at Wilson Avenue Weekday Morning: Wilson Avenue NB LT/RT	0.13	>50	ĬΤ	10	0.14	>50	ഥ	13	0.14	>50	ĬΤ	13
Weekday Evening: Wilson Avenue NB LT/RT	0.15	40	Щ	13	0.15	42	Щ	13	0.15	42	Щ	13
Lake Street at Littlejohn Street												
Weekday Morning: Littlejohn Street NB LT/RT	0.56	>50	Ħ	09	0.87	>50	щ	103	0.81	>50	Щ	95
weekday Evening: Littlejohn Street NB LT/RT	0.20	39	Э	18	0.31	48	Щ	30	0.31	47	Щ	30
Lake Street at Homestead Road												
Homestead Road NB LT/RT	0.16	>50	Ħ	13	0.29	>50	щ	23	0.16	>50	Н	13
n eekaay Evening: Homestead Road NB LT/RT	0.09	31	О	∞	0.09	31	О	∞	60.0	31	О	~
Lake Street at Burch Street/Alfred Road Weekday Morning:												
Burch Street NB LT/TH/RT	0.27	>50	TH [25	0.27	>50	ᅜ	25	0.27	>50	III [25
Allred Road SB L1/1H/K1 Weekday Evening:	0.13	‡	ŭ	CI	0.13	. 5	ц	CI	0.13	.	ц	CI
Burch Street NB LT/TH/RT	0.28	>50	Ħ	25	0.28	>50	Ħ	25	0.28	>50	Ħ	25
Alfred Road SB LT/TH/RT	90.0	48	Щ	S	90.0	48	Щ	S	90.0	84	Щ	S



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UNSIGNALIZED INTERSECTION CAPACITY ANALYSIS SUMMARY Table 6 (Continued)

	2027 N	2027 No-Build: Previous Program	revious P	rogram	2027	2027 Build: Previous Program	evious Pro	gram	2027	2027 Build: Current Program	rrent Pro	gram
Unsignalized Intersection/ Critical Movement/Peak Hour	V/C^a	Delay ^b	Γ OS $_{c}$	Queue ^d (feet)	N/C	Delay	ros	Queue (feet)	V/C	Delay	ros	Queue (feet)
Lake Street at Margaret Street/Lakehill Avenue Weekdav Morning:												
Margaret Street NB LT/TH/RT	0.80	>50	ഥ	83	0.89	>50	ഥ	100	0.87	>50	ഥ	95
Lakehill Avenue SB LT/TH/RT	0.20	40	Ы	18	0.20	41	Ы	18	0.20	4	Ы	18
Weekday Evening:												
Margaret Street NB LT/TH/RT	0.60	>50	ĽΨ	113	0.98	>50	ĽΨ	125	96.0	>50	Ľ	123
Lakehill Avenue SB LT/TH/RT	0.40	>50	ഥ	38	0.48	>50	ഥ	45	0.46	>50	ഥ	43
Littlejohn Streets/Dorothy Street at Site Driveway Weekday Morning:												
Site Driveway NB TH/RT	Interse	Intersection constructed under	structed u	ınder	0.03	6	А	7	0.02	6	Α	
weekaay Evening: Site Driveway NB TH/RT	07	2027 Build conditions		•	0.02	6	Ą	-	0.01	6	4	1



^aVolume-to-capacity ratio.
^bDelay in seconds per vehicle.
^cLevel of service.
^d95th percentile queue length in feet.

NB = northbound; SB = southbound; RB = right-turning movements; TH = through movements.

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Signalized Intersection Analysis Results

As shown in Table 7, the updated level-of-service analysis indicates that traffic operations did not change significantly compared to the No Build condition with no change in overall intersection level of service over 2027 No-Build conditions or the previously proposed Build program.



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Table 7 SIGNALIZED INTERSECTION CAPACITY ANALYSIS SUMMARY

Location/Peak Hour/Movement	Z0Z,	Oue Delay ^b LOS ^c 50 th / ₁	SOT	Queue ^d 50 th /95 th	V/C	Delay	Delay LOS 50'	Queue 50th/95th	V/C	Delay LOS 50	SOT	Queue 50th/95th
ROUTE 2 AT ROUTE 16 (4 SIGNALS) Signal 1: Route 2 WB at Route 16 SB: Weekday Morning: Route 2 WB TH Route 16 SB RT	0.85	10	ш г. С	43/40 581/659	0.85	10	ш г.	43/40 581/659	0.85	10	д г. С	43/40 581/659
Weekday Evening: Route 2 WB TH Route 16 SB RT Overall	1.08	20 4 4 4 8 4 4 8 4 4 8 4 4 8 4 4 4 8 4	D F O O	702/57 472/644	1.08	44 4 4 8 4 8 4 8 4 8 4 8 4 8 4 8 4 8 4	D H O O	704/56 472/644	1.08	44 4 4 4 8 4 8 4 8 4 8 4 8 4 8 4 8 4 8	D F O	704/56 472/644
Signal 2: Route 2 EB at Route 16 NB/SB/ Alewife Station Access Road: Weekday Morning: Route 2 EB LT Alewife Station Access Road WB TH Route 16 NB LT Route 16 SB TH	0.92 0.26 1.09 0.72	72 17 >80 47	田田下口田	206/308 86/138 728/868 223/269	0.92 0.26 1.09 0.72	72 72 74 74 73	日田下口田	206/308 86/138 730/868 223/269	0.92 0.26 1.09 0.72	72 17 80 47 47	п и г О г	206/308 86/138 730/868 223/269
Weekday Evening: Route 2 EB LT Alewife Station Access Road WB TH Route 16 NB LT Route 16 SB TH Overall	1.19 0.85 1.14 0.31	3 3 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	нонон	326/446 422/639 792/931 84/123	1.19 0.85 1.14 0.31	2 08 08 08 08 08 08 08 08 08 08 08 08 08	FOHOF	326/446 422/639 794/933 84/123	1.19 0.85 1.14 0.31	2	н О н О н	326/446 422/639 794/933 84/123
Signal 3: Route 16 NB/SB at Alewife Station Access Road: Weekday Morning: Alewife Station Access Road WB TH Alewife Station Access Road WB RT Route 16 NB TH	0.17 0.07 0.32	9 38 38 23	CDAA	50/81 15/31 83/121	0.17 0.07 0.32	38 8 8 7 33 8 8 9	CDAA	50/81 15/31 83/121	0.17 0.07 0.32	38 8 8 7 33 8 8 9	CDAA	50/81 15/31 83/121
Weekday Evening: Alewife Station Access Road WB TH Alewife Station Access Road WB RT Route 16 NB TH Overall	0.56 0.36 0.30	16 11 38 19	8 D B B	239/337 110/165 81/119	0.56 0.36 0.30	16 11 38 19	8 D B B	239/337 110/165 81/119	0.56 0.36 0.30	16 11 38 19	8 D B B	239/337 110/165 81/119



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Table 7 (Continued)
SIGNALIZED INTERSECTION CAPACITY ANALYSIS SUMMARY

	202.	2027 No-Build: Previous Program	Previous P	rogram	202	2027 Build: Previous Program	evious Pro	gram	200	2027 Build: Current Program	urrent Pro	gram
Location/Peak Hour/Movement	V/Ca	Delay ^b	SOT	Queue ^d 50 th /95 th	V/C	Delay	SOT	Queue 50 th /95 th	V/C	Delay	SOT	Queue 50th/95th
Signal 4: Route 2 EB at Route 16 SB:												
Weekday Morning:												
Route 2 EB RT	0.52	12	В	220/272	0.52	12	В	221/272	0.52	12	В	221/272
Route 16 SB TH	0.62	4	A	2/0	0.62	4	Α	2/0	0.62	4	Ą	2/0
Overall	1	6	¥	1	;	6	A	1	:	6	V	1
Weekday Evening:												
Route 2 EB RT	0.50	11	В	209/255	0.50	11	В	210/258	0.50	Ξ	В	210/258
Route 16 SB TH	0.26	1	A	0/1	0.26	_	Ą	0/1	0.26	_	A	0/1
Overall	;	10	Ą	1	1	10	Ą	1	1	10	Ą	1
LAKE STREET AT ROUTE 2 EB ON/OFF-RAMPS:												
Weekday Morning:												
Lake Street EB TH	0.64	28	C	118/204	0.65	28	C	119/205	0.65	28	C	119/205
Lake Street EB RT	0.30	0	A	0/0	0.30	0	A	0/0	0.30	0	A	0/0
Lake Street WB LT	0.58	27	C	83/151	0.58	27	C	84/152	0.58	27	C	84/152
Lake Street WB TH	0.25	7	Α	42/57	0.25	9	A	43/57	0.25	7	Ą	43/57
Route 2 EB Off-Ramp NB LT	1.04	42	Ľ,	234/482	1.04	08<	Į,	236/482	1.04	80	Ľ	236/482
Route 2 EB Off-Ramp NB RT	0.78	17	В	54/243	0.78	17	В	55/246	0.78	17	В	55/247
Overall	!	56	ပ	1	1	27	ပ	1	1	27	ပ	1
Weekday Evening:												
Lake Street EB TH	0.75	27	C	215/361	0.75	27	C	216/362	0.75	27	C	216/362
Lake Street EB RT	0.12	0	A	0/0	0.12	0	A	0/0	0.12	0	Ą	0/0
Lake Street WB LT	0.61	36	D	79/156	0.61	36	Q	80/157	0.61	36	Q	80/157
Lake Street WB TH	0.16	S	A	28/40	0.16	S	A	87/40	0.16	S	Ą	28/40
Route 2 EB Off-Ramp NB LT	>1.20	>80	Ľ,	315/634	>1.20	08<	Į,	316/635	>1.20	>80	Ľ	316/635
Route 2 EB Off-Ramp NB RT	0.90	28	ပ	90/361	0.90	59	C	93/368	0.90	59	C	92/367
Overall	1	49	D	;	1	20	D	:	1	20	D	1



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Table 7 (Continued)
SIGNALIZED INTERSECTION CAPACITY ANALYSIS SUMMARY

	2027	2027 No-Build: Previous Program	Previous P	rogram	200	2027 Build: Previous Program	evious Pro	gram	20	2027 Build: Current Program	urrent Pro	gram
Location/Peak Hour/Movement	V/Ca	Delay ^b	Γ OS $_{c}$	Queue ^d 50 th /95 th	V/C	Delay	SOT	Queue 50th/95th	V/C	Delay	ros	Queue 50th/95th
LAKE STREET AT ROUTE 2 WB ON/OFF-RAMPS:												
Weekday Morning:												
Lake Street EB LT	0.77	41	О	88/179	0.77	41	Q	88/179	0.77	41	Q	88/179
Lake Street EB TH	0.69	15	В	167/265	0.70	15	В	168/268	0.70	15	В	169/268
Lake Street WB TH	1.05	>80	щ	214/378	1.06	08<	щ	217/381	1.06	>80	ш	217/381
Lake Street WB RT	1.03	51	щ	135/357	1.04	55	щ	169/364	1.03	54	ц	167/363
Route 2 WB Off-Ramp NB LT	0.23	19	В	28/56	0.23	19	В	28/56	0.23	19	В	28/56
Route 2 WB Off-Ramp NB LT/TH	0.22	19	В	28/55	0.22	19	В	28/55	0.22	19	В	28/55
Route 2 WB Off-Ramp NB RT	0.05	0	A	0/0	0.02	0	Ą	0/0	0.02	0	A	0/0
Overall	1	4	Q	1	:	45	Q	1	:	45	Q	1
Weekday Evening:												
Lake Street EB LT	1.18	>80	ш	191/331	1.19	08<	щ	191/331	1.19	>80	ц	191/331
Lake Street EB TH	0.94	32	C	275/503	0.94	34	C	283/514	0.94	34	C	281/513
Lake Street WB TH	0.65	27	C	92/162	0.64	27	C	93/163	0.65	27	C	93/163
Lake Street WB RT	0.59	7	A	95/0	0.59	7	A	0/57	0.59	7	Ą	0/57
Route 2 WB Off-Ramp NB LT	0.27	19	В	35/75	0.27	19	В	35/75	0.27	19	В	35/75
Route 2 WB Off-Ramp NB LT/TH	0.26	19	В	36/76	0.26	19	В	36/76	0.26	19	В	36/76
Route 2 WB Off-Ramp NB RT	0.04	0	A	0/0	0.05	0	Α	0/0	0.05	0	Α	0/0
Overall	1	45	Q	1	ŀ	45	Q	1	1	45	Q	1
LAKE STREET AT MINUTEMAN COMMUTER BIKEWAY:												
Weekday Morning:												
Lake Street EB TH	0.53	09	ш	132/180	0.54	61	Э	134/182	0.53	61	Э	133/181
Lake Street WB TH	0.82	89	ш	269/580	0.82	89	Э	570/580	0.82	89	ш	570/580
Overall	1	9	H	1	1	65	Ħ	!	1	9	Ħ	1
Weekday Evening:												
Lake Street EB TH	0.73	62	ш	230/312	0.73	62	ш	233/316	0.73	62	田	233/316
Lake Street WB TH	0.46	o t	∢ 6	226/307	0.47	o 1	∢ 6	31/45	0.46	o 1	∢ 6	229/167
Overall	1	1	a	!	:	1	a	1	!	1	a	1



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SIGNALIZED INTERSECTION CAPACITY ANALYSIS SUMMARY Table 7 (Continued)

	2027	2027 No-Build: Previous Program	Previous P	rogram	200	2027 Build: Previous Program	evious Pro	gram	20	2027 Build: Current Program	urrent Pro	gram
Location/Peak Hour/Movement	V/Ca	Delay ^b	$_{\circ}\mathrm{SOT}$	Queue ^d 50 th /95 th	A/C	Delay	SOT	Queue 50th/95th	V/C	Delay	SOT	Queue 50th/95th
LAKE STREET AT BROOKS AVENUE:												
Weekday Morning:		į	í			į	ŗ			ì	ţ	
Lake Street EB LI/IH/RI	0.64	53	O I	246/442	0.64	57	ΣÌ	249/448	0.64	26	ΤÌ	248/448
Lake Street WB LT/TH/RT	1.03	>80	ш	635/877	1.03	>80	Į,	636/879	1.03	>80	Į,	638/829
Brooks Avenue NB LT/TH/RT	0.50	38	Ω	23/44	0.50	38	Q	23/44	0.50	38	D	23/44
Brooks Avenue SB LT/TH/RT	0.48	11	В	5/35	0.48	11	В	5/35	0.48	11	В	5/35
Overall	1	89	¥	1	1	69	H	1	:	69	H	1
Weekday Evening:												
Lake Street EB LT/TH/RT	0.87	74	Щ	274/672	0.88	75	П	281/678	0.88	75	Э	279/677
Lake Street WB LT/TH/RT	0.51	13	В	171/284	0.52	13	В	174/289	0.51	13	В	174/288
Brooks Avenue NB LT/TH/RT	0.29	29	Ö	11/29	0.29	29	C	11/29	0.29	29	C	11/29
Brooks Avenue SB LT/TH/RT	0.50	13	В	2/33	0.50	13	В	2/33	0.50	13	В	2/33
Overall	1	47	D	1	ŀ	47	D	1	1	47	D	1
MASSACHUSETTS AVENUE AT LAKE STREET:												
Weekday Morning:												
Lake Street EB LT	0.73	47	Ω	167/257	0.73	47	Ω	170/259	0.73	47	Ω	169/258
Lake Street EB RT	0.59	14	В	40/122	0.59	14	В	42/125	0.59	14	В	41/125
Massachusetts Avenue NB LT	>1.20	>80	ĭ.	336/550	>1.20	>80	щ	339/554	>1.20	>80	Ľ,	339/554
Massachusetts Avenue NB TH	0.50	19	В	213/332	0.50	19	В	214/332	0.50	19	В	214/332
Massachusetts Avenue SB TH	0.76	33	C	281/409	0.76	33	C	282/409	92.0	33	C	282/409
Massachusetts Avenue SB RT	0.99	55	Щ	362/604	0.99	26	Щ	364/606	0.99	99	Щ	364/606
Overall	;	99	H	1	:	29	H	1	:	29	H	;
Weekday Evening:												
Lake Street EB LT	1.01	>80	ч	359/537	1.01	>80	ĽΨ	362/541	1.01	>80	[I	362/541
Lake Street EB RT	0.58	23	C	100/185	0.59	24	C	102/188	0.58	24	C	102/187
Massachusetts Avenue NB LT	1.13	>80	щ	217/422	1.14	>80	Ľ	224/433	1.14	>80	Ľ	223/431
Massachusetts Avenue NB TH	0.87	35	C	480/#740	0.87	35	C	480/740	0.87	35	C	480/740
Massachusetts Avenue SB TH	0.62	30	C	211/277	0.62	30	C	211/277	0.62	30	C	211/277
Massachusetts Avenue SB RT	0.37	17	В	58/122	0.37	17	В	59/124	0.37	17	В	59/124
Overall	1	49	Q	1	!	20	Q	1	;	20	Q	;



^aVolume to capacity ratio.

^bAverage stopped delay per vehicle (in seconds).

^cLevel of service.

^dQueue length in feet.

ITE PARKING DEMAND CALCULATIONS

Parking demand calculations for the proposed 124 units of senior housing were conducted utilizing parking ratio data for ITE LUC 252, *Senior Housing – Attached*. The parking demand data was obtained from the ITE *Parking Generation Manual* 5th Edition². Table 8 summarizes the parking demand calculations.

Table 8
PARKING DEMAND CALCULATIONS

ITE LUC	Number of Units	Average Parking Demand Rate	Required Spaces	Provided Spaces	Surplus Spaces
252	124	0.61 spaces/unit	76	76	20

As shown in Table 8, ITE data indicates that the average parking demand rate for senior housing facilities is 0.61 spaces per unit. The proposed development will construct 124 units and therefore requires 76 parking spaces for the development. The development as proposed will construct 96 parking spaces, which leaves 20 surplus spaces above the ITE methodology.

TRUCK TURNING DIAGRAMS: EMERGENCY RESPONSE VEHICLES

As requested, AutoTURN analyses were conducted for an ambulance and fire truck entering and exiting the site via Littlejohn Street. The specifications of the fire truck were obtained from the Arlington Fire Department. To provide a more conservative review, the analysis was conducted assuming cars are parked on both sides of Littlejohn Street, both in a staggered formation and directly across from each other. The analysis shows the emergency vehicles can travel to the site on Littlejohn Street with cars parked along both sides of the street. Figure 1 shows the ambulance entering the site, Figure 2 shows the ambulance exiting the site, Figure 3 shows the fire truck entering the site, and Figure 4 shows the fire truck exiting the site. The fastest route for an emergency response is via Massachusetts Avenue for fire trucks (from the 411 Massachusetts Avenue station) and Concord Turnpike (Route 2) for ambulances.

CONCLUSIONS

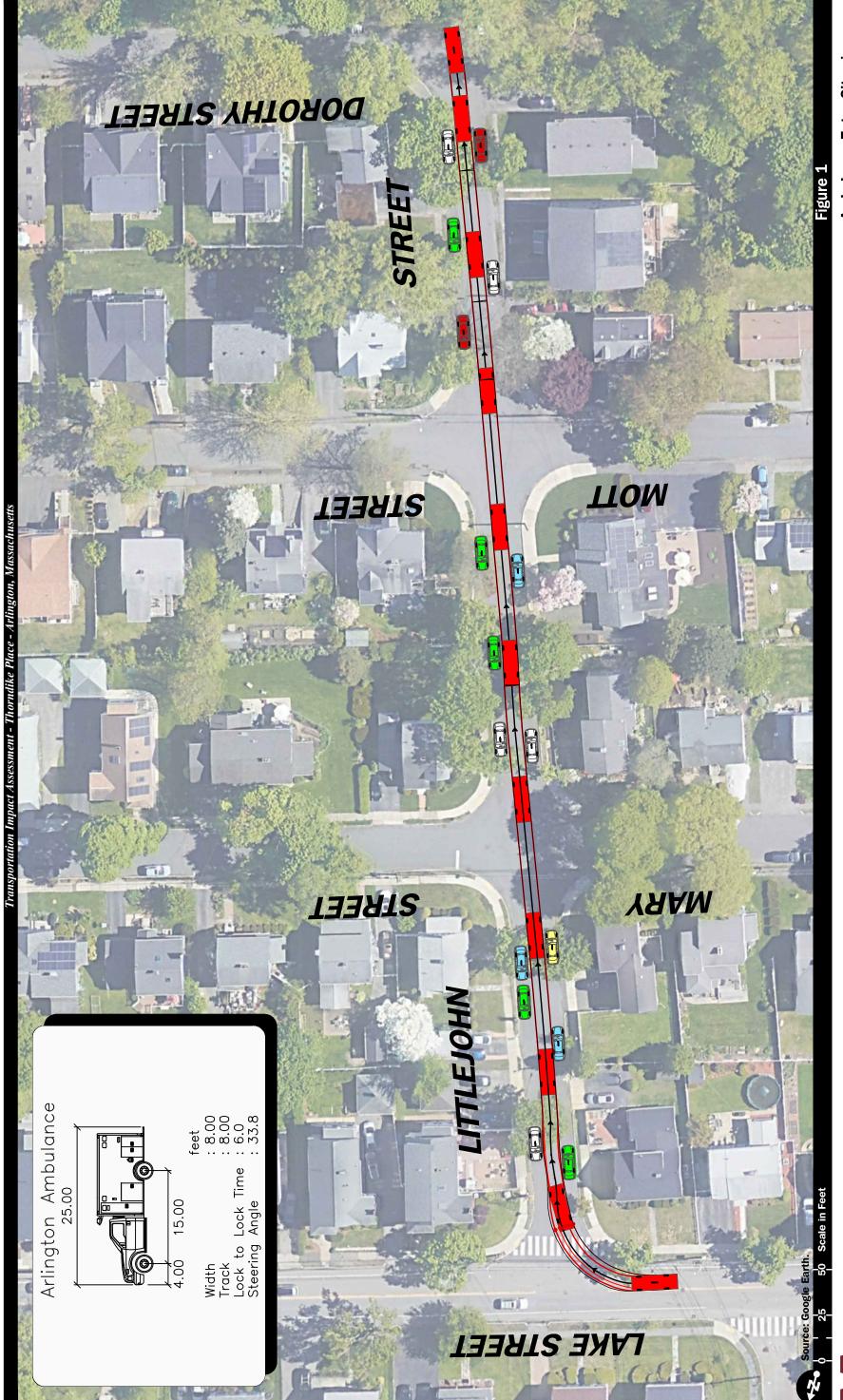
The current development program of 12 townhouses and 124 senior independent living residences is expected to result in 4 less vehicle trips during the weekday morning peak hour and 5 less trips during the weekday evening peak hour when compared to the previously proposed development program. The updated analyses indicate that a decrease in 4 to 5 peak-hour trips did not have a significant impact. Minor changes in delays and queue lengths were recorded but no change in level of service to critical movements or to overall intersection ratings of the No Build condition occurred as a result of the 4 to 5 fewer peak-hour trips.

The ITE parking demand calculations show the proposed 124 units of senior housing would require 76 parking spaces. The development plans to construct 96 parking spaces, which leaves an additional 20 spaces above the ITE methodology.

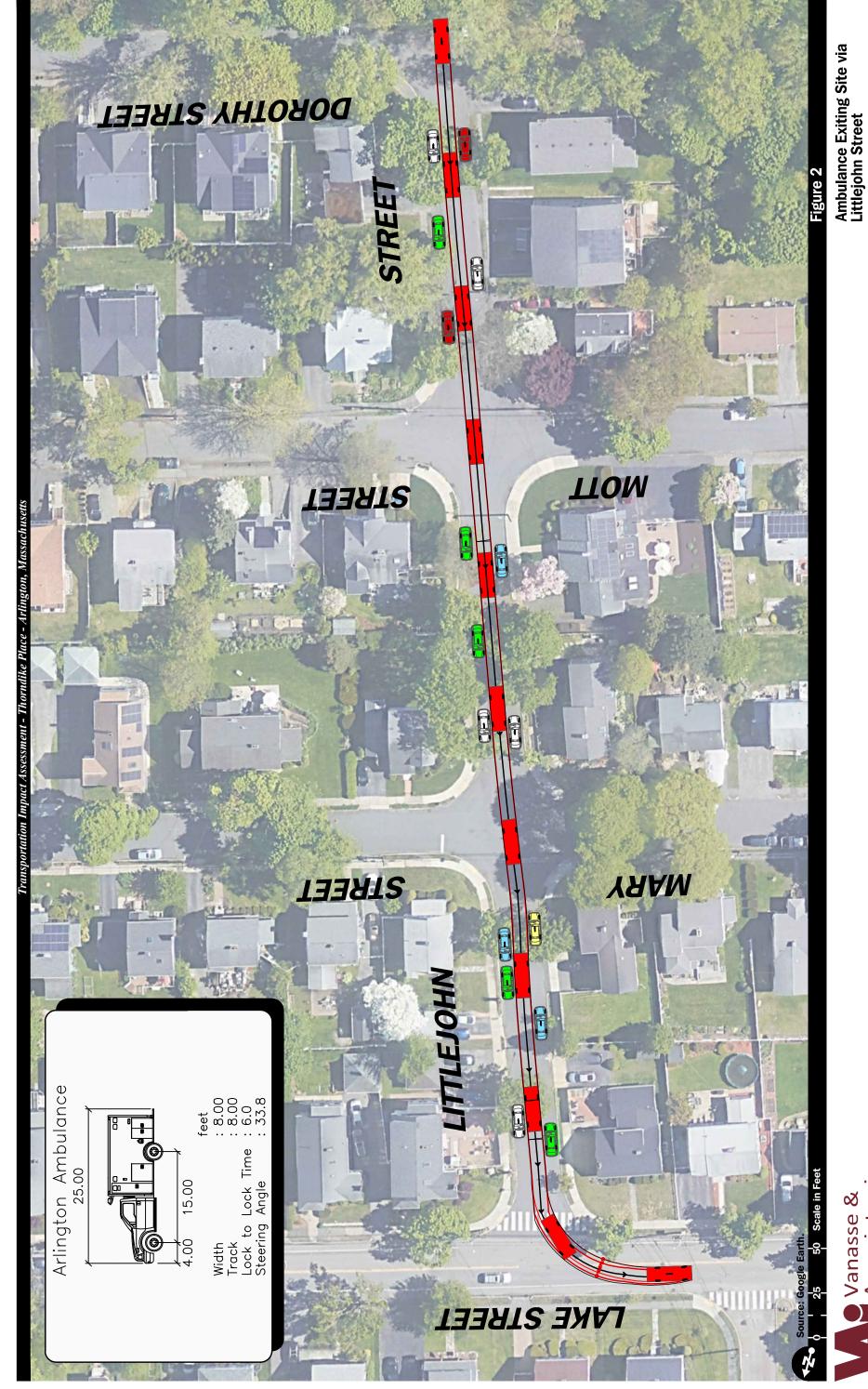
² Parking Generation Manual 5th Edition; Institute of Transportation Engineers; January 2019.



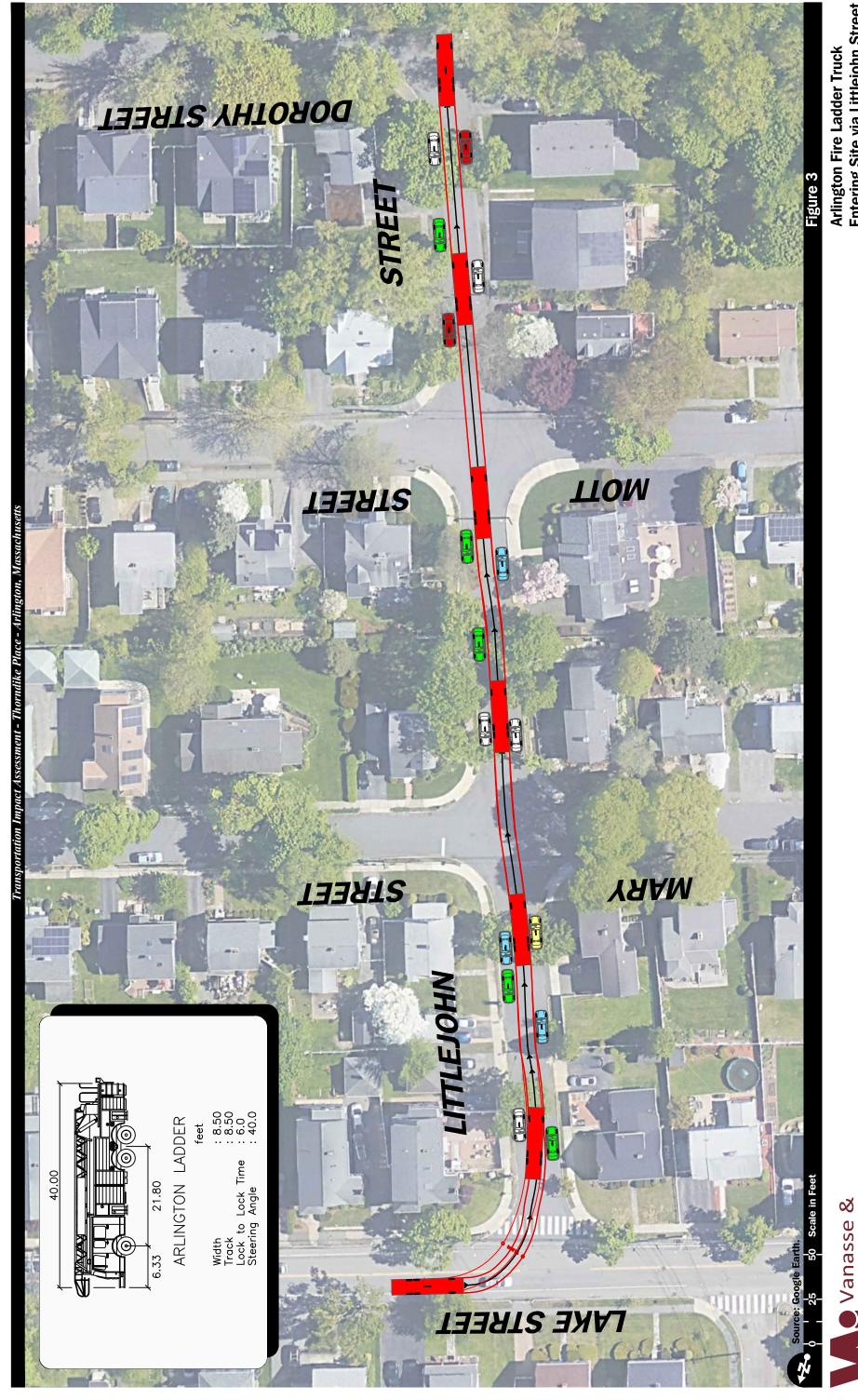
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Ambulance Enter Site via Littlejohn Street

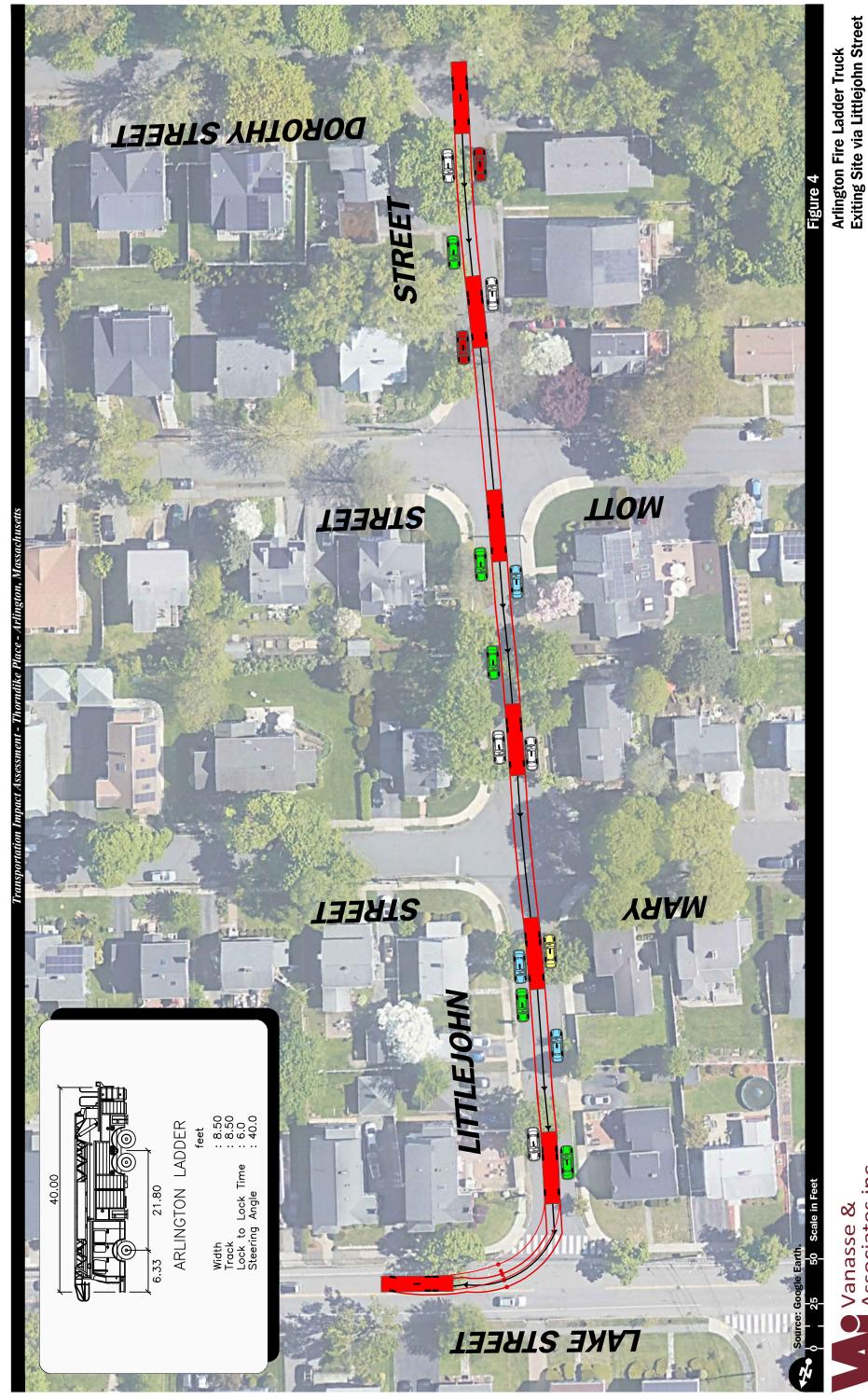








Associates inc





Arlington Zoning Board of Appeals August 3, 2021 Page 14 of 14

Lastly, the emergency response vehicle truck turning diagrams showed that both ambulances and the Town specified fire truck can access the site via Littlejohn Street, even with cars parked on both sides of the street.

Based on the above, the project will not have a substantial impact on traffic operation throughout the study area and therefore can be safely accommodated with the implementation of the recommendations identified in the peer review process.

If you have any questions on the information or conclusions reached herein, feel free to contact me.

Sincerely,

VANASSE & ASSOCIATES, INC.

Scott W. Thornton, P.E.

Principal

Derek I. Roach, P.E.

Senior Transportation Engineer

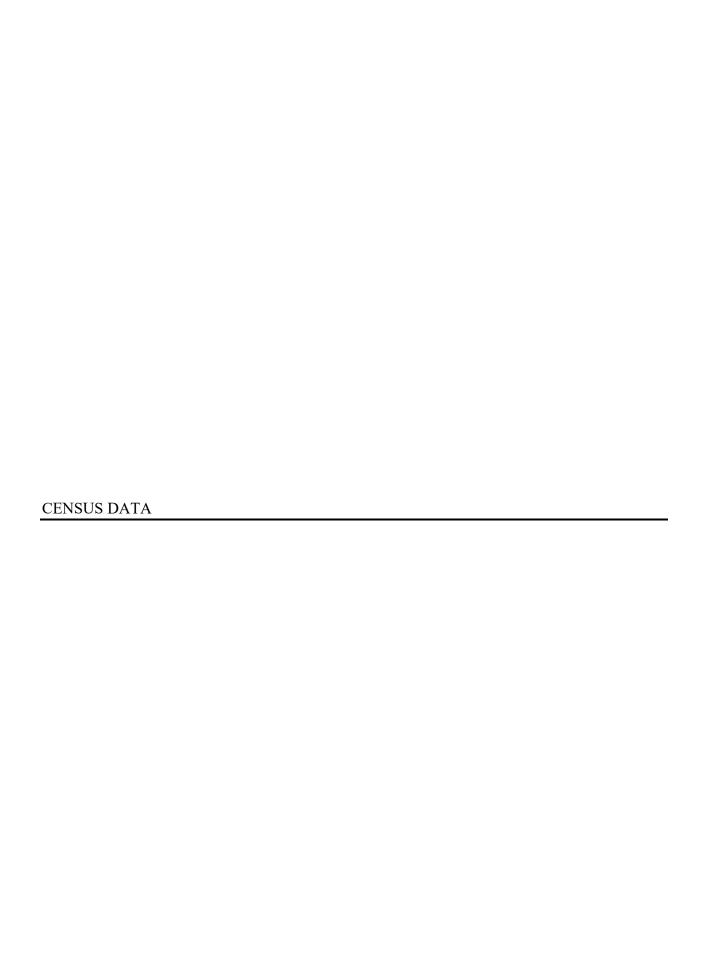
Attachments: Technical Appendix

cc: File



APPENDIX

CENSUS DATA
TRIP GENERATION CALCULATIONS
CAPACITY ANALYSIS



COMMUTING CHARACTERISTICS BY SEX



Note: This is a modified view of the original table produced by the U.S. Census Bureau. This download or printed version may have missing information from the original table.

	Census Tract 3561, Middlesex County, M	lassachusetts	
	Total	Male	
Label	Estimate	Margin of Error	Estimate
➤ Workers 16 years and over	2,051	±155	1,048
➤ MEANS OF TRANSPORTATION TO WORK			
✔ Car, truck, or van	54.5%	±7.2	57.7%
Drove alone	42.9%	±7.6	45.8%
✓ Carpooled	11.6%	±4.5	11.9%
In 2-person carpool	9.6%	±4.2	9.9%
In 3-person carpool	1.5%	±1.8	1.0%
In 4-or-more person carpool	0.5%	±0.8	1.0%
Workers per car, truck, or van	1.13	±0.06	1.13
Public transportation (excluding taxicab)	31.6%	±6.4	29.4%
Walked	0.0%	±1.7	0.0%
Bicycle	6.1%	±2.8	7.8%
Taxicab, motorcycle, or other means	1.3%	±2.0	0.0%
Worked at home	6.5%	±3.6	5.1%
➤ PLACE OF WORK			
➤ Worked in state of residence	98.1%	±1.5	97.9%
Worked in county of residence	65.1%	±6.2	61.6%
Worked outside county of residence	33.0%	±6.3	36.3%
Worked outside state of residence	1.9%	±1.5	2.1%
✓ Living in a place	100.0%	±1.7	100.0%
Worked in place of residence	11.2%	±4.0	7.6%
Worked outside place of residence	88.8%	±4.0	92.4%
Not living in a place	0.0%	±1.7	0.0%
➤ Living in 12 selected states	100.0%	±1.7	100.0%
Worked in minor civil division of residence	11.2%	±4.0	7.6%
Worked outside minor civil division of residence	88.8%	±4.0	92.4%
Not living in 12 selected states	0.0%	±1.7	0.0%
➤ Workers 16 years and over who did not work at home	1,918	±178	995
➤ TIME LEAVING HOME TO GO TO WORK			
12:00 a.m. to 4:59 a.m.	0.9%	±1.4	0.0%
5:00 a.m. to 5:29 a.m.	0.4%	±0.7	0.0%
5:30 a.m. to 5:59 a.m.	3.2%	±2.2	1.7%
6:00 a.m. to 6:29 a.m.	2.1%	±1.9	2.8%
6:30 a.m. to 6:59 a.m.	10.5%	±4.2	11.5%
7:00 a.m. to 7:29 a.m.	17.8%	±5.9	21.6%
7:30 a.m. to 7:59 a.m.	21.8%	±6.0	22.6%
8:00 a.m. to 8:29 a.m.	16.1%	±5.0	13.8%

Table Notes

COMMUTING CHARACTERISTICS BY SEX

Survey/Program:

American Community Survey

Year: 2018

Estimates:

5-Year

Table ID:

S0801

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities, and towns and estimates of housing units for states and counties.

Source: U.S. Census Bureau, 2014-2018 American Community Survey 5-Year Estimates

When information is missing or inconsistent, the Census Bureau logically assigns an acceptable value using the response to a related question or questions. If a logical assignment is not possible, data are filled using a statistical process called allocation, which uses a similar individual or household to provide a donor value. The "Allocated" section is the number of respondents who received an allocated value for a particular subject.

Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error (for a discussion of nonsampling variability, see ACS Technical Documentation). The effect of nonsampling error is not represented in these tables.

The 12 selected states are Connecticut, Maine, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and Wisconsin.

Workers include members of the Armed Forces and civilians who were at work last week.

While the 2014-2018 American Community Survey (ACS) data generally reflect the February 2013 Office of Management and Budget (OMB) definitions of metropolitan and micropolitan statistical areas; in certain instances the names, codes, and boundaries of the principal cities shown in ACS tables may differ from the OMB definitions due to differences in the effective dates of the geographic entities.

Estimates of urban and rural populations, housing units, and characteristics reflect boundaries of urban areas defined based on Census 2010 data. As a result, data for urban and rural areas from the ACS do not necessarily reflect the results of ongoing urbanization.

Explanation of Symbols:

An "**" entry in the margin of error column indicates that either no sample observations or too few sample observations were available to compute a standard error and thus the margin of error. A statistical test is not appropriate.

An "-" entry in the estimate column indicates that either no sample observations or too few sample observations were available to compute an estimate, or a ratio of medians cannot be calculated because one or both of the median estimates falls in the lowest interval or upper interval of an open-ended distribution, or the margin of error associated with a median was larger than the median itself.

An "-" following a median estimate means the median falls in the lowest interval of an open-ended distribution.

An "+" following a median estimate means the median falls in the upper interval of an open-ended distribution.

An "***" entry in the margin of error column indicates that the median falls in the lowest interval or upper interval of an open-ended distribution. A statistical test is not appropriate.

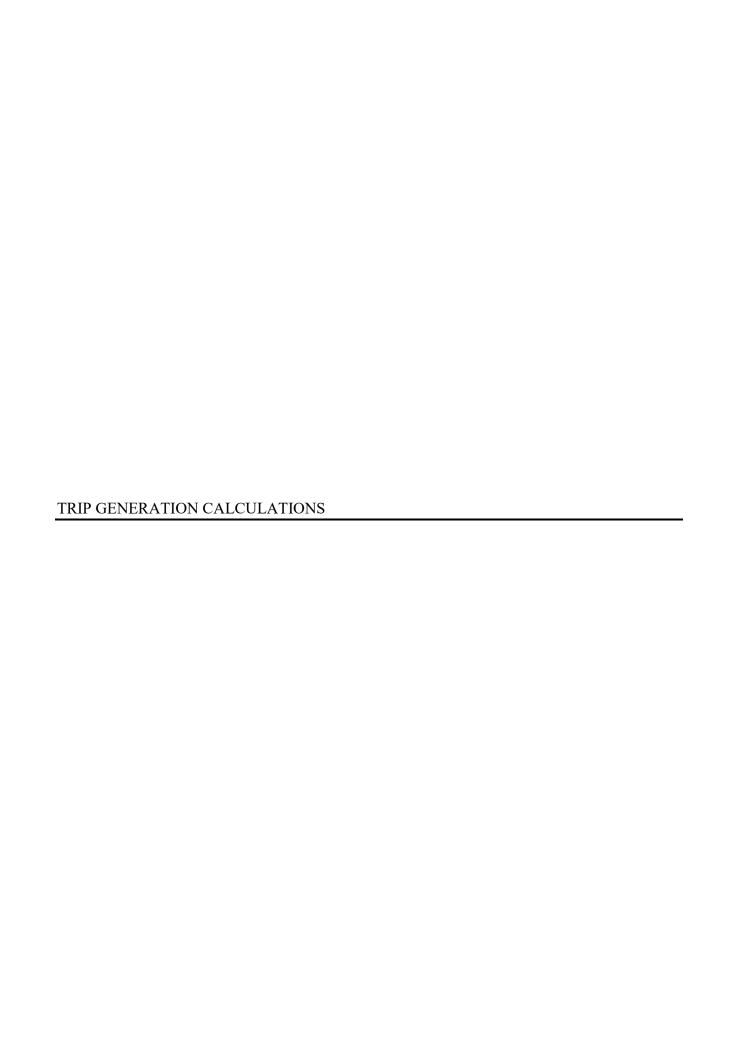
An "******" entry in the margin of error column indicates that the estimate is controlled. A statistical test for sampling variability is not appropriate.

An "N" entry in the estimate and margin of error columns indicates that data for this geographic area cannot be displayed because the number of sample cases is too small.

An "(X)" means that the estimate is not applicable or not available.

Supporting documentation on code lists, subject definitions, data accuracy, and statistical testing can be found on the American Community Survey website in the Technical Documentation section.

Sample size and data quality measures (including coverage rates, allocation rates, and response rates) can be found on the American Community Survey website in the Methodology section.



Institute of Transportation Engineers (ITE) Trip Generation, 10 th Edition Land Use Code (LUC) 220 - Multifamily Housing (Low-Rise)

Average Vehicle Trips Ends vs: Dwelling Units Independent Variable (X): 12

AVERAGE WEEKDAY DAILY

```
T = 7.32 * (X)

T = 7.32 * 12

T = 87.84

T = 88.00

T = 88 vehicle trips

with 50% ( 44 vpd) entering and 50% ( 44 vpd) exiting.
```

WEEKDAY MORNING PEAK HOUR OF ADJACENT STREET TRAFFIC

```
T = 0.46 * (X)

T = 0.46 * 12

T = 5.52

T = 6 vehicle trips

with 23% ( 1 vph) entering and 77% ( 5 vph) exiting.
```

WEEKDAY EVENING PEAK HOUR OF ADJACENT STREET TRAFFIC

```
T = 0.56 * (X)

T = 0.56 * 12

T = 6.72

T = 7.00

T = 7 vehicle trips

with 63% ( 4 vph) entering and 37% ( 3 vph) exiting.
```

AVERAGE SATURDAY

```
T = 8.14 * (X)

T = 8.14 * 12

T = 97.68

T = 98.00

T = 98 vehicle trips

with 50% ( 49 vpd) entering and 50% ( 49 vpd) exiting.
```

SATURDAY MIDDAY PEAK HOUR OF GENERATOR

```
T = 0.70 * (X)

T = 0.70* 12

T = 8.40

T = 8 vehicle trips

with 54% ( 4 vph) entering and 46% ( 4 vph) exiting.
```

Institute of Transportation Engineers (ITE) Trip Generation, 10 th Edition Land Use Code (LUC) 252 - Senior Adult Housing - Attached

Average Vehicle Trips Ends vs: Dwelling Units Independent Variable (X): 124

AVERAGE WEEKDAY DAILY

```
T = 4.02 * (X) - 25.37

T = 4.02 * 124 - 25.37

T = 473.11

T = 474 vehicle trips

with 50% ( 237 vph) entering and 50% ( 237 vph) exiting.
```

WEEKDAY MORNING PEAK HOUR OF ADJACENT STREET TRAFFIC

```
T = 0.20 * (X) - 0.18

T = 0.20 * 124 - 0.18

T = 24.62

T = 25 vehicle trips

with 35% ( 9 vph) entering and 65% ( 16 vph) exiting.
```

WEEKDAY EVENING PEAK HOUR OF ADJACENT STREET TRAFFIC

```
T = 0.24 * (X) + 2.26

T = 0.24 * 124 + 2.26

T = 32.02

T = 32 vehicle trips

with 55% ( 18 vph) entering and 45% ( 14 vph) exiting.
```

SATURDAY DAILY

```
T = 3.97 * (X) - 60.09

T = 3.97 * 124 - 60.09

T = 432.19

T = 432 vehicle trips

with 50% ( 216 vph) entering and 50% ( 216 vph) exiting.
```

SATURDAY MIDDAY PEAK HOUR OF GENERATOR

```
T = 0.35 * (X) -1.67

T = 0.35 * 124 -1.67

T = 41.73

T = 42 vehicle trips

with 62% ( 26 vph) entering and 38% ( 16 vph) exiting.
```

CAPACITY ANALYSIS

2027 No-Build Weekday Morning Peak Hour Previous Program

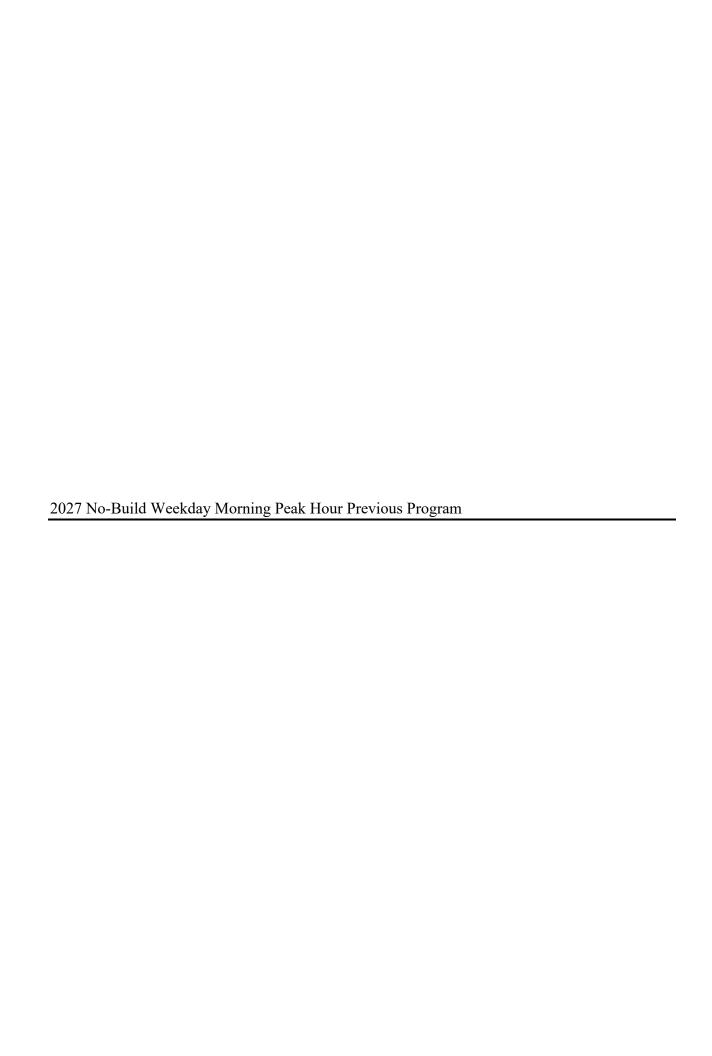
2027 No-Build Weekday Evening Peak Hour Previous Program

2027 Build Weekday Morning Peak Hour Previous Program

2027 Build Weekday Evening Peak Hour Previous Program

2027 Build Weekday Morning Peak Hour Current Program

2027 Build Weekday Evening Peak Hour Current Program



	>	74	\mathbf{x}	4	*	*	
Lane Group	EBL	EBR	SET	SER	NWL	NWT	Ø9
Lane Configurations	ች	7	^	7	ች	†	
Traffic Volume (vph)	258	291	851	608	402	454	
Future Volume (vph)	258	291	851	608	402	454	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	1900	16	1300	1900	11	1300	
Storage Length (ft)	0	100	11	55	150	12	
Storage Lanes	1	100		1	130		
Taper Length (ft)	25	ı		ı	25		
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	1.00	
Frt	1.00	0.850	0.95	0.850	1.00	1.00	
	0.050	0.000		0.000	0.050		
Flt Protected	0.950	1010	2404	1.400	0.950	1000	
Satd. Flow (prot)	2025	1812	3421	1492	1728	1863	
Flt Permitted	0.950	4040	0.404	4.400	0.143	4000	
Satd. Flow (perm)	2025	1812	3421	1492	260	1863	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)		244		211			
Link Speed (mph)	30		30			30	
Link Distance (ft)	1126		640			645	
Travel Time (s)	25.6		14.5			14.7	
Peak Hour Factor	0.91	0.91	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	1%	1%	2%	1%	1%	2%	
Adj. Flow (vph)	284	320	925	661	437	493	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	284	320	925	661	437	493	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Right	Left	Left	
Median Width(ft)	16		11			11	
Link Offset(ft)	0		0			0	
Crosswalk Width(ft)	16		16			16	
Two way Left Turn Lane							
Headway Factor	0.85	0.85	1.04	1.09	1.04	1.00	
Turning Speed (mph)	15	9		9	15		
Number of Detectors	1	1	2	1	1	2	
Detector Template	Left	Right	Thru	Right	Left	Thru	
Leading Detector (ft)	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	
Detector 1 Size(ft)	20	20	6	20	20	6	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	Cl+Ex	CI+Ex	
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)	0.0	0.0	94	0.0	0.0	94	
Detector 2 Size(ft)			6			6	
Detector 2 Type			CI+Ex			CI+Ex	
Detector 2 Channel			OI LX			OI. LX	
Detector 2 Extend (s)			0.0			0.0	
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA	
Tuill Type	FIUL	r emi	INA	r CIIII	μπτμι	INA	

	*	-	\mathbf{x}	4	*	×			
Lane Group	EBL	EBR	SET	SER	NWL	NWT	Ø9		
Protected Phases	4		6		5	2	9		
Permitted Phases		4		6	2				
Detector Phase	4	4	6	6	5	2			
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0		
Minimum Split (s)	23.0	23.0	23.0	23.0	10.0	23.0	19.0		
Total Split (s)	29.0	29.0	38.0	38.0	15.0	53.0	23.0		
Total Split (%)	27.6%	27.6%	36.2%	36.2%	14.3%	50.5%	22%		
Maximum Green (s)	22.0	22.0	31.0	31.0	9.0	46.0	20.0		
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	4.0	2.0		
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	1.0		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0			
Total Lost Time (s)	7.0	7.0	7.0	7.0	6.0	7.0			
Lead/Lag			Lag	Lag	Lead				
Lead-Lag Optimize?			Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0		
Recall Mode	None	None	Max	Max	None	Max	None		
Walk Time (s)							5.0		
Flash Dont Walk (s)							11.0		
Pedestrian Calls (#/hr)							35		
Act Effct Green (s)	17.1	17.1	31.8	31.8	48.2	47.2			
Actuated g/C Ratio	0.19	0.19	0.36	0.36	0.54	0.53			
v/c Ratio	0.73	0.59	0.76	0.99	1.49	0.50			
Control Delay	46.5	14.1	32.7	55.2	258.1	18.7			
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0			
Total Delay	46.5	14.1	32.7	55.2	258.1	18.7			
LOS	D	В	C	Е	F	B			
Approach LOS	29.3		42.1			131.2			
Approach LOS	С		D			F			
Intersection Summary									
• • • • • • • • • • • • • • • • • • •	Other								
Cycle Length: 105									
Actuated Cycle Length: 88.8									
Natural Cycle: 120									
Control Type: Actuated-Unco	oordinated								
Maximum v/c Ratio: 1.49									
Intersection Signal Delay: 66					ntersectio				
Intersection Capacity Utilizat	ion 76.8%)		IC	CU Level	of Service	: D		
Analysis Period (min) 15									
Splits and Phases: 2: Mas	sachusett	s Aevnue	/Massacl	nusetts Av			et		
Ø2					- 2	Ø4		# \$ @9	
53 s					29 s			23 s	

→ Ø6

	>	-	×	4	*	×
Lane Group	EBL	EBR	SET	SER	NWL	NWT
Lane Group Flow (vph)	284	320	925	661	437	493
v/c Ratio	0.73	0.59	0.76	0.99	1.49	0.50
Control Delay	46.5	14.1	32.7	55.2	258.1	18.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.5	14.1	32.7	55.2	258.1	18.7
Queue Length 50th (ft)	167	40	281	~362	~336	213
Queue Length 95th (ft)	257	122	#409	#604	#550	332
Internal Link Dist (ft)	1046		560			565
Turn Bay Length (ft)		100		55	150	
Base Capacity (vph)	515	642	1225	670	293	990
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.50	0.76	0.99	1.49	0.50

Intersection Summary

Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

	-	•	•	←	₹I	4	/
Lane Group	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations		7	ሻ	^	NDO	Ä	7
Traffic Volume (vph)	311	493	210	419	271	221	520
Future Volume (vph)	311	493	210	419	271	221	520
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	10	150	110	11	12	0	0
Storage Lanes		130	110			1	1
		l	25			25	I
Taper Length (ft)	1.00	1.00		0.05	1.00	1.00	1.00
Lane Util. Factor	1.00		1.00	0.95	1.00	1.00	
Frt		0.850	0.050			0.050	0.850
Flt Protected	0400	4040	0.950	0.455	^	0.950	4700
Satd. Flow (prot)	2132	1812	1685	3455	0	2037	1706
Flt Permitted			0.950			0.950	
Satd. Flow (perm)	2132	1812	1685	3455	0	2037	1706
Right Turn on Red		Yes					Yes
Satd. Flow (RTOR)		333					402
Link Speed (mph)	30			30		30	
Link Distance (ft)	239			505		387	
Travel Time (s)	5.4			11.5		8.8	
Peak Hour Factor	0.91	0.91	0.84	0.84	0.91	0.91	0.91
Heavy Vehicles (%)	1%	1%	0%	1%	0%	1%	1%
Adj. Flow (vph)	342	542	250	499	298	243	571
Shared Lane Traffic (%)	•	•					
Lane Group Flow (vph)	342	542	250	499	0	541	571
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	R NA	Left	Right
Median Width(ft)	12	ragne	Loit	12	1 (14) (16	ragne
Link Offset(ft)	0			0		0	
Crosswalk Width(ft)	16			16		16	
Two way Left Turn Lane	10			10		10	
•	0.05	0.05	1.00	1.04	1.00	0.05	0.02
Headway Factor	0.85	0.85	1.09	1.04	1.00	0.85	0.92
Turning Speed (mph)	^	9	15	^	9	15	9
Number of Detectors	2	1	1	2	1	1	1
Detector Template	Thru	Right	Left	Thru	Left	Left	Right
Leading Detector (ft)	100	20	20	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20	20
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94			
Detector 2 Size(ft)	6			6			
Detector 2 Type	CI+Ex			CI+Ex			
Detector 2 Channel	OIILX			OI. LX			
Detector 2 Extend (s)	0.0			0.0			
. ,		Eroo	Drot		Dorm	Drot	Dorm
Turn Type	NA	Free	Prot	NA	Perm	Prot	Perm

	→	\rightarrow	•	←	₹î	•	~
Lane Group	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Protected Phases	4		3	8		2	
Permitted Phases		Free			2		2
Detector Phase	4		3	8	2	2	2
Switch Phase							
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0		9.0	21.0	21.0	21.0	21.0
Total Split (s)	74.0		25.0	99.0	21.0	21.0	21.0
Total Split (%)	61.7%		20.8%	82.5%	17.5%	17.5%	17.5%
Maximum Green (s)	69.0		20.0	94.0	16.0	16.0	16.0
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0		5.0	5.0		5.0	5.0
Lead/Lag	Lag		Lead				
Lead-Lag Optimize?	Yes		Yes				
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0
Recall Mode	None		None	None	Max	Max	Max
Walk Time (s)	5.0			5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0			11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0	0
Act Effct Green (s)	15.7	63.2	16.2	37.0		16.2	16.2
Actuated g/C Ratio	0.25	1.00	0.26	0.59		0.26	0.26
v/c Ratio	0.64	0.30	0.58	0.25		1.04	0.78
Control Delay	27.7	0.4	27.3	6.5		78.8	16.8
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	27.7	0.4	27.3	6.5		78.8	16.8
LOS	С	Α	С	Α		Е	В
Approach Delay	11.0			13.4		47.0	
Approach LOS	В			В		D	

Intersection Summary

Area Type: Other

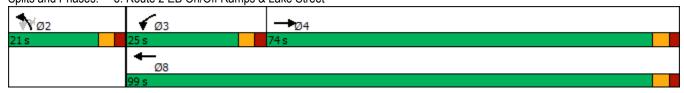
Cycle Length: 120 Actuated Cycle Length: 63.2 Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.04 Intersection Signal Delay: 26.2 Intersection Capacity Utilization 67.8% Analysis Period (min) 15

Intersection LOS: C
ICU Level of Service C

Splits and Phases: 5: Route 2 EB On/Off Ramps & Lake Street



	→	•	•	•	1	~
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	342	542	250	499	541	571
v/c Ratio	0.64	0.30	0.58	0.25	1.04	0.78
Control Delay	27.7	0.4	27.3	6.5	78.8	16.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.7	0.4	27.3	6.5	78.8	16.8
Queue Length 50th (ft)	118	0	83	42	~234	54
Queue Length 95th (ft)	204	0	151	57	#482	#243
Internal Link Dist (ft)	159			425	307	
Turn Bay Length (ft)		150	110			
Base Capacity (vph)	2110	1812	538	3455	520	735
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.30	0.46	0.14	1.04	0.78

Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

	>	→	74	~	←	*_	\	`*	4	*	*	<
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations	ሻ	†			†	7				7	4	7
Traffic Volume (vph)	224	607	0	0	478	716	0	0	0	151	6	10
Future Volume (vph)	224	607	0	0	478	716	0	0	0	151	6	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	11	10	12	12	12	11	12	16
Storage Length (ft)	250		0	0		75	0		0	100		0
Storage Lanes	1		0	0		1	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt						0.850						0.850
Flt Protected	0.950									0.950	0.956	
Satd. Flow (prot)	1805	1881	0	0	1837	1492	0	0	0	1579	1594	1830
Flt Permitted	0.950									0.950	0.956	
Satd. Flow (perm)	1805	1881	0	0	1837	1492	0	0	0	1579	1594	1830
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						490						136
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		505			380			459			529	
Travel Time (s)		11.5			8.6			10.4			12.0	
Peak Hour Factor	0.88	0.88	0.88	0.92	0.92	0.92	0.92	0.92	0.92	0.81	0.81	0.81
Heavy Vehicles (%)	0%	1%	0%	0%	0%	1%	0%	0%	0%	5%	50%	0%
Adj. Flow (vph)	255	690	0	0	520	778	0	0	0	186	7	12
Shared Lane Traffic (%)			•				-	-		48%	-	
Lane Group Flow (vph)	255	690	0	0	520	778	0	0	0	97	96	12
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12	J .		12	J		11	J •		11	J
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.04	1.09	1.00	1.00	1.00	1.04	1.00	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2	1				1	2	1
Detector Template	Left	Thru			Thru	Right				Left	Thru	Right
Leading Detector (ft)	20	100			100	20				20	100	20
Trailing Detector (ft)	0	0			0	0				0	0	0
Detector 1 Position(ft)	0	0			0	0				0	0	0
Detector 1 Size(ft)	20	6			6	20				20	6	20
Detector 1 Type	Cl+Ex	CI+Ex			CI+Ex	CI+Ex				Cl+Ex	CI+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0	0.0				0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0			0.0	0.0				0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0			0.0	0.0				0.0	0.0	0.0
Detector 2 Position(ft)		94			94						94	
Detector 2 Size(ft)		6			6						6	
Detector 2 Type		CI+Ex			CI+Ex						CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type	Prot	NA			NA	Perm				Split	NA	Perm

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Protected Phases	7	4			8					2	2	
Permitted Phases						8						2
Detector Phase	7	4			8	8				2	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0			4.0	4.0				4.0	4.0	4.0
Minimum Split (s)	8.5	22.0			22.0	22.0				22.0	22.0	22.0
Total Split (s)	16.0	38.0			22.0	22.0				22.0	22.0	22.0
Total Split (%)	26.7%	63.3%			36.7%	36.7%				36.7%	36.7%	36.7%
Maximum Green (s)	11.5	32.0			16.0	16.0				16.0	16.0	16.0
Yellow Time (s)	4.0	4.0			4.0	4.0				4.0	4.0	4.0
All-Red Time (s)	0.5	2.0			2.0	2.0				2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0				0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0			6.0	6.0				6.0	6.0	6.0
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Vehicle Extension (s)	3.0	3.0			3.0	3.0				3.0	3.0	3.0
Recall Mode	None	None			None	None				Max	Max	Max
Walk Time (s)		5.0			5.0	5.0				5.0	5.0	5.0
Flash Dont Walk (s)		11.0			11.0	11.0				11.0	11.0	11.0
Pedestrian Calls (#/hr)		0			0	0				0	0	0
Act Effct Green (s)	11.0	31.5			16.0	16.0				16.0	16.0	16.0
Actuated g/C Ratio	0.18	0.53			0.27	0.27				0.27	0.27	0.27
v/c Ratio	0.77	0.69			1.05	1.03				0.23	0.22	0.02
Control Delay	40.9	15.0			81.3	51.2				19.0	18.9	0.1
Queue Delay	0.0	0.0			0.0	0.0				0.0	0.0	0.0
Total Delay	40.9	15.0			81.3	51.2				19.0	18.9	0.1
LOS	D	В			F	D				В	В	Α
Approach Delay		22.0			63.2						17.8	
Approach LOS		С			Е						В	

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 59.5

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.05

Intersection Signal Delay: 43.5 Intersection LOS: D
Intersection Capacity Utilization 74.8% ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 7: Route 2 WB Off Ramp & Lake Street



	>	→	←	*_	4	×	4
Lane Group	EBL	EBT	WBT	WBR	NWL	NWT	NWR
Lane Group Flow (vph)	255	690	520	778	97	96	12
v/c Ratio	0.77	0.69	1.05	1.03	0.23	0.22	0.02
Control Delay	40.9	15.0	81.3	51.2	19.0	18.9	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.9	15.0	81.3	51.2	19.0	18.9	0.1
Queue Length 50th (ft)	88	167	~214	~135	28	28	0
Queue Length 95th (ft)	#179	265	#378	#357	56	55	0
Internal Link Dist (ft)		425	300			449	
Turn Bay Length (ft)	250			75	100		
Base Capacity (vph)	348	1012	494	759	425	429	591
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.68	1.05	1.03	0.23	0.22	0.02

Intersection Summary

Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

	#	→	←	€	6	4			
Lane Group	EBL	EBT	WBT	WBR	SWL	SWR	Ø3	Ø4	
Lane Configurations			^ ^			77			
Traffic Volume (vph)	0	0	1596	0	0	1062			
Future Volume (vph)	0	0	1596	0	0	1062			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Lane Width (ft)	13	13	13	13	13	13			
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.88			
Frt				,,,,,		0.850			
Flt Protected									
Satd. Flow (prot)	0	0	4729	0	0	2617			
Flt Permitted									
Satd. Flow (perm)	0	0	4729	0	0	2617			
Right Turn on Red				Yes		Yes			
Satd. Flow (RTOR)						7			
Link Speed (mph)		30	30		30				
Link Distance (ft)		201	192		296				
Travel Time (s)		4.6	4.4		6.7				
Peak Hour Factor	0.92	0.92	0.90	0.92	0.92	0.85			
Heavy Vehicles (%)	2%	2%	2%	2%	2%	1%			
Adj. Flow (vph)	0	0	1773	0	0	1249			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	0	0	1773	0	0	1249			
Enter Blocked Intersection	No	No	No	No	No	No			
Lane Alignment	Left	Left	Left	Right	Left	Right			
Median Width(ft)		0	0	J	0	Ŭ			
Link Offset(ft)		0	0		0				
Crosswalk Width(ft)		16	16		16				
Two way Left Turn Lane									
Headway Factor	1.10	1.10	1.10	1.10	1.10	1.10			
Turning Speed (mph)	15			9	15	30			
Number of Detectors			2			1			
Detector Template			Thru			Right			
Leading Detector (ft)			100			20			
Trailing Detector (ft)			0			0			
Detector 1 Position(ft)			0			0			
Detector 1 Size(ft)			6			20			
Detector 1 Type			CI+Ex			CI+Ex			
Detector 1 Channel									
Detector 1 Extend (s)			0.0			0.0			
Detector 1 Queue (s)			0.0			0.0			
Detector 1 Delay (s)			0.0			0.0			
Detector 2 Position(ft)			94						
Detector 2 Size(ft)			6						
Detector 2 Type			CI+Ex						
Detector 2 Channel									
Detector 2 Extend (s)			0.0						
Turn Type			NA			custom			
Protected Phases			2			3 4	3	4	
Permitted Phases									
Detector Phase			2			3 4			

	#	-	•	€	Ĺ	4			
Lane Group	EBL	EBT	WBT	WBR	SWL	SWR	Ø3	Ø4	
Switch Phase									
Minimum Initial (s)			10.0				10.0	10.0	
Minimum Split (s)			15.0				19.0	15.0	
Total Split (s)			58.0				36.0	26.0	
Total Split (%)			48.3%				30%	22%	
Maximum Green (s)			53.0				30.0	21.0	
Yellow Time (s)			4.0				4.0	3.5	
All-Red Time (s)			1.0				2.0	1.5	
Lost Time Adjust (s)			0.0						
Total Lost Time (s)			5.0						
Lead/Lag			0.0				Lead	Lag	
Lead-Lag Optimize?								9	
Vehicle Extension (s)			3.0				3.0	3.0	
Recall Mode			C-Max				Max	Max	
Walk Time (s)			O Max				5.0	WICK	
Flash Dont Walk (s)							8.0		
Pedestrian Calls (#/hr)							0.0		
Act Effct Green (s)			53.0			56.0	U		
Actuated g/C Ratio			0.44			0.47			
v/c Ratio			0.85			1.02			
Control Delay			5.6			62.8			
Queue Delay			4.5			0.0			
Total Delay			10.1			62.8			
LOS			В			62.6 E			
Approach Delay			10.1		62.8				
Approach LOS			В		02.0 E				
<u> </u>									
Intersection Summary	DD								
	BD								
Cycle Length: 120									
Actuated Cycle Length: 120	1	OWDT	01-1-1-0						
Offset: 16 (13%), Referenced	to pnase	2:WB1,	Start of G	reen					
Natural Cycle: 110	P ()								
Control Type: Actuated-Coord	dinated								
Maximum v/c Ratio: 1.09	^					100.0			
Intersection Signal Delay: 31.					ntersection		_		
Intersection Capacity Utilization	on 84.7%			IC	CU Level o	of Service	E		
Analysis Period (min) 15									
Splits and Phases: 11: Rou	ite 2/Alew	ife Brook	Parkway	& Route	16				
#11 #12 #13 #14					#11 #1	2 #13 #	14		#11 #12 #13 #14
← ★ ★ Ø2 (R)					1	, 1	4 Ø3		* → * \ \ Ø4



	MOT	014/5
Lane Group	WBT	SWR
Lane Group Flow (vph)	1773	1249
v/c Ratio	0.85	1.02
Control Delay	5.6	62.8
Queue Delay	4.5	0.0
Total Delay	10.1	62.8
Queue Length 50th (ft)	43	~581
Queue Length 95th (ft)	m40	#659
Internal Link Dist (ft)	112	
Turn Bay Length (ft)		
Base Capacity (vph)	2088	1225
Starvation Cap Reductn	252	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.97	1.02

Queue shown is maximum after two cycles.

Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

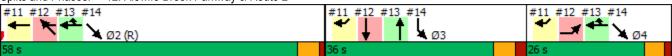
^{# 95}th percentile volume exceeds capacity, queue may be longer.

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group Lane Configurations Traffic Volume (vph) Future Volume (vph) Ideal Flow (vphpl) Lane Width (ft) Lane Util. Factor	505 505 1900	WBR 7 169	SBT	NWT
Lane Configurations Traffic Volume (vph) Future Volume (vph) Ideal Flow (vphpl) Lane Width (ft) Lane Util. Factor	505 505	7		
Traffic Volume (vph) Future Volume (vph) Ideal Flow (vphpl) Lane Width (ft) Lane Util. Factor	505 505			^
Future Volume (vph) Ideal Flow (vphpl) Lane Width (ft) Lane Util. Factor	505		506	1427
Ideal Flow (vphpl) Lane Width (ft) Lane Util. Factor		169	506	1427
Lane Width (ft) Lane Util. Factor	1300	1900	1900	1900
Lane Util. Factor	13	1900	1300	1300
	0.97	1.00	0.95	0.95
L-1	0.97		0.95	0.95
Frt	0.050	0.865		
Flt Protected	0.950	4504	2024	0004
Satd. Flow (prot)	3224	1581	3291	3291
Flt Permitted	0.950			
Satd. Flow (perm)	3224	1581	3291	3291
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)			30	30
Link Distance (ft)			202	278
Travel Time (s)			4.6	6.3
Peak Hour Factor	0.97	0.94	0.85	0.90
Heavy Vehicles (%)	1%	6%	2%	2%
Adj. Flow (vph)	521	180	595	1586
Shared Lane Traffic (%)	021	100	330	1000
Lane Group Flow (vph)	521	180	595	1586
Enter Blocked Intersection		No	No	No
	Left	R NA	Left	L NA
Lane Alignment	Leit	KINA		
Median Width(ft)			0	0
Link Offset(ft)			0	0
Crosswalk Width(ft)			16	16
Two way Left Turn Lane				
Headway Factor	1.10	0.97	1.10	1.10
Turning Speed (mph)	15	30		
Number of Detectors	1	1	2	2
Detector Template	Left	Right	Thru	Thru
Leading Detector (ft)	20	20	100	100
Trailing Detector (ft)	0	0	0	0
Detector 1 Position(ft)	0	0	0	0
Detector 1 Size(ft)	20	20	6	6
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel	OLLEY	OITEX	OFFEX	OITEX
Detector 1 Extend (s)	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94	94
Detector 2 Size(ft)			6	6
Detector 2 Type			CI+Ex	CI+Ex
Detector 2 Channel				
Detector 2 Extend (s)			0.0	0.0
Turn Type	Prot	Prot	NA	NA
Protected Phases	4	2!	3	2!
Permitted Phases				
Detector Phase	4	2	3	2

Switch Phase Minimum Initial (s)		_*	*_	ļ	×	
Minimum Initial (s) 10.0 10.0 10.0 10.0 Minimum Split (s) 15.0 15.0 19.0 15.0 15.0 Total Split (s) 26.0 58.0 36.0 58.0 Total Split (s) 21.7% 48.3% 30.0% 48.3% Maximum Green (s) 21.0 53.0 30.0 53.0 Yellow Time (s) 3.5 4.0 4.0 4.0 All-Red Time (s) 1.5 1.0 2.0 1.0 Lost Time Adjust (s) 0.0 0.0 0.0 0.0 0.0 Total Lost Time (s) 5.0 5.0 6.0 5.0 Lead/Lag Lead Lead-Lag Optimize? Vehicle Extension (s) 3.0 3.0 3.0 3.0 S.0 Recall Mode Max C-Max Max C-Max Max C-Max Walk Time (s) 5.0 5.0 6.0 5.0 Lead/Lag Optimize? Vehicle Extension (s) 3.0 3.0 3.0 3.0 S.0 Recall Mode Max C-Max Max C-Max Walk Time (s) 5.0 S.0 S.0 S.0 S.0 S.0 S.0 S.0 S.0 S.0 S	Lane Group	EBL	WBR	SBT	NWT	
Minimum Split (s) 15.0 15.0 19.0 15.0 Total Split (s) 26.0 58.0 36.0 58.0 Total Split (%) 21.7% 48.3% 30.0% 48.3% Maximum Green (s) 21.0 53.0 30.0 53.0 Yellow Time (s) 3.5 4.0 4.0 4.0 All-Red Time (s) 1.5 1.0 2.0 1.0 Lost Time Adjust (s) 0.0 0.0 0.0 0.0 Total Lost Time (s) 5.0 5.0 6.0 5.0 Lead/Lag Lag Lead Lead-Lag Optimize? Vehicle Extension (s) 3.0 3.0 3.0 3.0 Recall Mode Max C-Max Max C-Max Walk Time (s) 5.0 Flash Dont Walk (s) 8.0 Pedestrian Calls (#/hr) 0 Act Effct Green (s) 21.0 53.0 30.0 53.0 Actuated g/C Ratio 0.18 0.44 0.25 0.44 V/c Ratio 0.92 0.26 0.72 1.09 Control Delay 72.2 14.3 47.1 85.5 Queue Delay 0.0 2.4 0.0 3.6 Total Delay 72.2 16.7 47.1 89.1 LOS E B D F Approach Delay 72.2 16.7 47.1 89.1 LOS E B D F Approach LOS D F Intersection Summary Area Type: CBD Cycle Length: 120 Offset: 16 (13%), Referenced to phase 2:WBT, Start of Green Natural Cycle: 110 Control Type: Actuated-Coordinated Maximum V/c Ratio: 1.09 Intersection Signal Delay: 72.8 Intersection LOS: E Intersection Signal Delay: 72.8 Intersection Capacity Utilization 103.7%	Switch Phase					
Total Split (s)	Minimum Initial (s)					
Total Split (%)	Minimum Split (s)					
Maximum Green (s) 21.0 53.0 30.0 53.0 Yellow Time (s) 3.5 4.0 4.0 4.0 All-Red Time (s) 1.5 1.0 2.0 1.0 Lost Time Adjust (s) 0.0 0.0 0.0 0.0 Total Lost Time (s) 5.0 5.0 6.0 5.0 Lead/Lag Lag Lead Lead Lead-Lag Optimize? Vehicle Extension (s) 3.0 3.0 3.0 Recall Mode Max C-Max Max C-Max Walk Time (s) 5.0 S.0 S.0 Flash Dont Walk (s) 8.0 S.0 Pedestrian Calls (#/hr) 0 0 0 0 0 Actuated g/C Ratio 0.18 0.44 0.25 0.44 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Total Split (s)					
Yellow Time (s) 3.5 4.0 4.0 4.0 All-Red Time (s) 1.5 1.0 2.0 1.0 Lost Time Adjust (s) 0.0 0.0 0.0 0.0 Total Lost Time (s) 5.0 5.0 6.0 5.0 Lead/Lag Lag Lead Leead Leead-Lag Optimize? Vehicle Extension (s) 3.0 3.0 3.0 Recall Mode Max C-Max Max C-Max Walk Time (s) 5.0 Flash Dont Walk (s) 8.0 Pedestrian Calls (#/hr) 0 0 0 0 0 Act Effet Green (s) 21.0 53.0 30.0 53.0 53.0 Actuated g/C Ratio 0.18 0.44 0.25 0.44 0.0 2.0 0.0 2.4 0.0 3.6 Control Delay 72.2 14.3 47.1 89.1 8.5 0.0 0.0 2.4 0.0 3.6 0.0 1.0 1.0 0.0 2.4 0.0 3.6 0.0 1.0 1.0 0.0 1.0 0.0	Total Split (%)					
All-Red Time (s)	Maximum Green (s)					
Lost Time Adjust (s)	Yellow Time (s)	3.5			4.0	
Total Lost Time (s) 5.0 5.0 6.0 5.0 Lead/Lag Lag Lead Lead-Lag Optimize? Vehicle Extension (s) 3.0 3.0 3.0 3.0 Recall Mode Max C-Max Max C-Max Walk Time (s) 5.0 Flash Dont Walk (s) 8.0 Pedestrian Calls (#/hr) 0 Act Effct Green (s) 21.0 53.0 30.0 53.0 Actuated g/C Ratio 0.18 0.44 0.25 0.44 v/c Ratio 0.92 0.26 0.72 1.09 Control Delay 72.2 14.3 47.1 85.5 Queue Delay 72.2 14.3 47.1 85.5 Queue Delay 72.2 16.7 47.1 89.1 LOS E B D F Approach Delay 47.1 89.1 LOS E B D F Approach LOS D F Intersection Summary Area Type: CBD Cycle Length: 120 Offset: 16 (13%), Referenced to phase 2:WBT, Start of Green Natural Cycle: 110 Control Type: Actuated-Coordinated Maximum v/c Ratio: 1.09 Intersection Signal Delay: 72.8 Intersection LOS: E Intersection Capacity Utilization 103.7% Intersection Cose Capacity Utilization 103.7% Intersection Cap	All-Red Time (s)	-				
Lead/Lag	Lost Time Adjust (s)					
Lead-Lag Optimize? Vehicle Extension (s) 3.0 5.0	Total Lost Time (s)	5.0	5.0	6.0	5.0	
Vehicle Extension (s) 3.0 3.0 3.0 3.0 Recall Mode Max C-Max Max C-Max Walk Time (s) 5.0 Flash Dont Walk (s) 8.0 Pedestrian Calls (#/hr) 0 0 0 Act Effct Green (s) 21.0 53.0 30.0 53.0 Actuated g/C Ratio 0.18 0.44 0.25 0.44 v/c Ratio 0.92 0.26 0.72 1.09 Control Delay 72.2 14.3 47.1 85.5 Queue Delay 0.0 2.4 0.0 3.6 Total Delay 72.2 16.7 47.1 89.1 LOS E B D F Approach Delay 47.1 89.1 89.1 Approach LOS D F Intersection Summary Area Type: CBD Cycle Length: 120 Cycle Length: 120 Actuated Cycle: 110 Control Type: Actuated-Coordinated Maximum v/c Ratio: 1.09 Intersec	Lead/Lag	Lag		Lead		
Recall Mode	Lead-Lag Optimize?					
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Section Calls Flash Dont Walk (s) Section Calls (#/hr) O	Recall Mode	Max	C-Max		C-Max	
Pedestrian Calls (#/hr) 0 Act Effct Green (s) 21.0 53.0 30.0 53.0 Actuated g/C Ratio 0.18 0.44 0.25 0.44 v/c Ratio 0.92 0.26 0.72 1.09 Control Delay 72.2 14.3 47.1 85.5 Queue Delay 0.0 2.4 0.0 3.6 Total Delay 72.2 16.7 47.1 89.1 LOS E B D F Approach Delay 47.1 89.1 Approach LOS D F Intersection Summary Area Type: CBD Cycle Length: 120 Actuated Cycle Length: 120 Offset: 16 (13%), Referenced to phase 2:WBT, Start of Green Natural Cycle: 110 Control Type: Actuated-Coordinated Maximum v/c Ratio: 1.09 Intersection Capacity Utilization 103.7% ICU Level of Service G Analysis Period (min) 15	Walk Time (s)					
Act Effct Green (s) 21.0 53.0 30.0 53.0 Actuated g/C Ratio 0.18 0.44 0.25 0.44 v/c Ratio 0.92 0.26 0.72 1.09 Control Delay 72.2 14.3 47.1 85.5 Queue Delay 0.0 2.4 0.0 3.6 Total Delay 72.2 16.7 47.1 89.1 LOS E B D F Approach Delay 47.1 89.1 Approach LOS D F Intersection Summary Area Type: CBD Cycle Length: 120 Actuated Cycle Length: 120 Offset: 16 (13%), Referenced to phase 2:WBT, Start of Green Natural Cycle: 110 Control Type: Actuated-Coordinated Maximum v/c Ratio: 1.09 Intersection Capacity Utilization 103.7% Intersection Capacity Utilization 103.7% Intersection General ICU Level of Service G Analysis Period (min) 15	Flash Dont Walk (s)					
Actuated g/C Ratio 0.18 0.44 0.25 0.44 v/c Ratio 0.92 0.26 0.72 1.09 Control Delay 72.2 14.3 47.1 85.5 Queue Delay 0.0 2.4 0.0 3.6 Total Delay 72.2 16.7 47.1 89.1 LOS E B D F Approach Delay 47.1 89.1 Approach LOS D F Intersection Summary Area Type: CBD Cycle Length: 120 Actuated Cycle Length: 120 Offset: 16 (13%), Referenced to phase 2:WBT, Start of Green Natural Cycle: 110 Control Type: Actuated-Coordinated Maximum v/c Ratio: 1.09 Intersection Signal Delay: 72.8 Intersection LOS: E Intersection Capacity Utilization 103.7% ICU Level of Service G Analysis Period (min) 15	Pedestrian Calls (#/hr)					
v/c Ratio 0.92 0.26 0.72 1.09 Control Delay 72.2 14.3 47.1 85.5 Queue Delay 0.0 2.4 0.0 3.6 Total Delay 72.2 16.7 47.1 89.1 LOS E B D F Approach Delay 47.1 89.1 Approach LOS D F Intersection Summary Area Type: CBD Cycle Length: 120 Cycle Length: 120 Actuated Cycle Length: 120 Offset: 16 (13%), Referenced to phase 2:WBT, Start of Green Natural Cycle: 110 Control Type: Actuated-Coordinated Maximum v/c Ratio: 1.09 Intersection Signal Delay: 72.8 Intersection LOS: E Intersection Capacity Utilization 103.7% ICU Level of Service G Analysis Period (min) 15 ICU Level of Service G	Act Effct Green (s)					
Control Delay 72.2 14.3 47.1 85.5 Queue Delay 0.0 2.4 0.0 3.6 Total Delay 72.2 16.7 47.1 89.1 LOS E B D F Approach Delay 47.1 89.1 Approach LOS D F Intersection Summary Area Type: CBD Cycle Length: 120 Actuated Cycle Length: 120 Offset: 16 (13%), Referenced to phase 2:WBT, Start of Green Natural Cycle: 110 Control Type: Actuated-Coordinated Maximum v/c Ratio: 1.09 Intersection Capacity Utilization 103.7% Intersection LOS: E Intersection Capacity Utilization 103.7% ICU Level of Service G Analysis Period (min) 15	Actuated g/C Ratio					
Queue Delay 0.0 2.4 0.0 3.6 Total Delay 72.2 16.7 47.1 89.1 LOS E B D F Approach Delay 47.1 89.1 Approach LOS D F Intersection Summary Area Type: CBD Cycle Length: 120 Actuated Cycle Length: 120 Offset: 16 (13%), Referenced to phase 2:WBT, Start of Green Natural Cycle: 110 Control Type: Actuated-Coordinated Maximum v/c Ratio: 1.09 Intersection Signal Delay: 72.8 Intersection LOS: E Intersection Capacity Utilization 103.7% ICU Level of Service G Analysis Period (min) 15	v/c Ratio					
Total Delay 72.2 16.7 47.1 89.1 LOS E B D F Approach Delay 47.1 89.1 Approach LOS D F Intersection Summary Area Type: CBD Cycle Length: 120 Actuated Cycle Length: 120 Offset: 16 (13%), Referenced to phase 2:WBT, Start of Green Natural Cycle: 110 Control Type: Actuated-Coordinated Maximum v/c Ratio: 1.09 Intersection Signal Delay: 72.8 Intersection LOS: E Intersection Capacity Utilization 103.7% ICU Level of Service G Analysis Period (min) 15	Control Delay					
Approach Delay 47.1 89.1 Approach LOS D F Intersection Summary Area Type: CBD Cycle Length: 120 Actuated Cycle Length: 120 Offset: 16 (13%), Referenced to phase 2:WBT, Start of Green Natural Cycle: 110 Control Type: Actuated-Coordinated Maximum v/c Ratio: 1.09 Intersection Signal Delay: 72.8 Intersection LOS: E Intersection Capacity Utilization 103.7% ICU Level of Service G Analysis Period (min) 15	Queue Delay					
Approach Delay 47.1 89.1 Approach LOS D F Intersection Summary Area Type: CBD Cycle Length: 120 Actuated Cycle Length: 120 Offset: 16 (13%), Referenced to phase 2:WBT, Start of Green Natural Cycle: 110 Control Type: Actuated-Coordinated Maximum v/c Ratio: 1.09 Intersection Signal Delay: 72.8 Intersection LOS: E Intersection Capacity Utilization 103.7% ICU Level of Service G Analysis Period (min) 15	Total Delay			47.1		
Approach LOS D F Intersection Summary Area Type: CBD Cycle Length: 120 Actuated Cycle Length: 120 Offset: 16 (13%), Referenced to phase 2:WBT, Start of Green Natural Cycle: 110 Control Type: Actuated-Coordinated Maximum v/c Ratio: 1.09 Intersection Signal Delay: 72.8 Intersection LOS: E Intersection Capacity Utilization 103.7% ICU Level of Service G Analysis Period (min) 15	LOS	E	В			
Intersection Summary Area Type: CBD Cycle Length: 120 Actuated Cycle Length: 120 Offset: 16 (13%), Referenced to phase 2:WBT, Start of Green Natural Cycle: 110 Control Type: Actuated-Coordinated Maximum v/c Ratio: 1.09 Intersection Signal Delay: 72.8 Intersection LOS: E Intersection Capacity Utilization 103.7% ICU Level of Service G Analysis Period (min) 15	Approach Delay					
Area Type: CBD Cycle Length: 120 Actuated Cycle Length: 120 Offset: 16 (13%), Referenced to phase 2:WBT, Start of Green Natural Cycle: 110 Control Type: Actuated-Coordinated Maximum v/c Ratio: 1.09 Intersection Signal Delay: 72.8 Intersection LOS: E Intersection Capacity Utilization 103.7% ICU Level of Service G Analysis Period (min) 15	Approach LOS			D	F	
Cycle Length: 120 Actuated Cycle Length: 120 Offset: 16 (13%), Referenced to phase 2:WBT, Start of Green Natural Cycle: 110 Control Type: Actuated-Coordinated Maximum v/c Ratio: 1.09 Intersection Signal Delay: 72.8 Intersection LOS: E Intersection Capacity Utilization 103.7% ICU Level of Service G Analysis Period (min) 15	Intersection Summary					
Actuated Cycle Length: 120 Offset: 16 (13%), Referenced to phase 2:WBT, Start of Green Natural Cycle: 110 Control Type: Actuated-Coordinated Maximum v/c Ratio: 1.09 Intersection Signal Delay: 72.8 Intersection Capacity Utilization 103.7% ICU Level of Service G Analysis Period (min) 15	Area Type:	CBD				
Offset: 16 (13%), Referenced to phase 2:WBT, Start of Green Natural Cycle: 110 Control Type: Actuated-Coordinated Maximum v/c Ratio: 1.09 Intersection Signal Delay: 72.8 Intersection LOS: E Intersection Capacity Utilization 103.7% ICU Level of Service G Analysis Period (min) 15	Cycle Length: 120					
Natural Cycle: 110 Control Type: Actuated-Coordinated Maximum v/c Ratio: 1.09 Intersection Signal Delay: 72.8 Intersection Capacity Utilization 103.7% ICU Level of Service G Analysis Period (min) 15	Actuated Cycle Length: 120)				
Control Type: Actuated-Coordinated Maximum v/c Ratio: 1.09 Intersection Signal Delay: 72.8 Intersection Capacity Utilization 103.7% ICU Level of Service G Analysis Period (min) 15	Offset: 16 (13%), Reference	ed to phase	2:WBT,	Start of G	Green	
Maximum v/c Ratio: 1.09 Intersection Signal Delay: 72.8 Intersection Capacity Utilization 103.7% ICU Level of Service G Analysis Period (min) 15	Natural Cycle: 110					
Intersection Signal Delay: 72.8 Intersection LOS: E Intersection Capacity Utilization 103.7% ICU Level of Service G Analysis Period (min) 15		ordinated				
Intersection Capacity Utilization 103.7% ICU Level of Service G Analysis Period (min) 15	Maximum v/c Ratio: 1.09					
Intersection Capacity Utilization 103.7% ICU Level of Service G Analysis Period (min) 15	Intersection Signal Delay: 7	2.8			Ir	ntersection LOS: E
Analysis Period (min) 15			%		I	CU Level of Service G
•	Analysis Period (min) 15					
. I hado dominot bottwoom land groups.	, ,	lane groups	S.			

Splits and Phases: 12: Alewife Brook Parkway & Route 2



	#	*	↓ ·	×
Lane Group	EBL	WBR	SBT	NWT
Lane Group Flow (vph)	521	180	595	1586
v/c Ratio	0.92	0.26	0.72	1.09
Control Delay	72.2	14.3	47.1	85.5
Queue Delay	0.0	2.4	0.0	3.6
Total Delay	72.2	16.7	47.1	89.1
Queue Length 50th (ft)	206	86	223	~728
Queue Length 95th (ft)	#308	138	269	#868
Internal Link Dist (ft)			122	198
Turn Bay Length (ft)				
Base Capacity (vph)	564	698	822	1453
Starvation Cap Reductn	0	397	0	0
Spillback Cap Reductn	0	6	0	13
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.92	0.60	0.72	1.10

Intersection Summary

Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

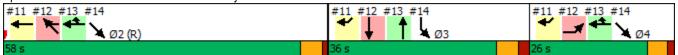
Queue shown is maximum after two cycles.

Lane Group		•	-	•	•	←	•	•	†	~	>	ţ	1
Traffic Volume (vph)	Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	Lane Configurations					*	7		44				
Future Volume (viph)		0	0	0	0		54	0		0	0	0	0
Ideal Flow (vphpl)		0	0	0	0	169	54	0	224	0	0	0	
Storage Length (ft)	Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (fit) 25		0		0	0		200	0		0	0		
Taper Length (ft)		0		0	0		1	0		0	0		0
Lane Util. Factor		25			25			25			25		
Firt Firt		1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Fit Protected Satd. Flow (prot) 0 0 0 0 1613 1333 0 3154 0 0 0 0 0 0 0 0 0	Ped Bike Factor												
Satd. Flow (prot) 0	Frt						0.850						
Fit Permitted Satd. Flow (perm) 0 0 0 0 1613 1333 0 3154 0 0 0 0 0 0 0 0 0	Flt Protected												
Fit Permitted Satd. Flow (perm) 0 0 0 0 1613 1333 0 3154 0 0 0 0 0 0 0 0 0	Satd. Flow (prot)	0	0	0	0	1613	1333	0	3154	0	0	0	0
Right Turn on Red No No No No No No No N	,												
Satd. Flow (RTOR)	Satd. Flow (perm)	0	0	0	0	1613	1333	0	3154	0	0	0	0
Link Speed (mph) 30	Right Turn on Red			No			No	No		No			No
Link Distance (ft)	Satd. Flow (RTOR)												
Link Distance (ft)	Link Speed (mph)		30			30			30			30	
Confl. Peds. (#/hr)			161			1225			227			185	
Peak Hour Factor 0.92 0.93	Travel Time (s)		3.7			27.8			5.2			4.2	
Heavy Vehicles (%)	Confl. Peds. (#/hr)						2						
Adj. Flow (vph) 0 0 0 0 184 59 0 249 0 0 0 0 Shared Lane Traffic (%) Lane Group Flow (vph) 0 0 0 0 184 59 0 249 0 0 0 0 Enter Blocked Intersection Lane Alignment Left Left Left Right Left Left Right Left Left Right Left Left Left Left Right Left Left Left Left Left Right Left Left Left Left Left Right Left Left Left Left Left Left Right Left Left Left Left Left Left Left Right Left Left Left Left Left Left Left Left	Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.90	0.92	0.92	0.92	0.92
Adj. Flow (vph) 0 0 0 0 184 59 0 249 0 0 0 0 Shared Lane Traffic (%) Lane Group Flow (vph) 0 0 0 0 184 59 0 249 0 0 0 0 Enter Blocked Intersection Low Flow (vph) No	Heavy Vehicles (%)	2%	2%	2%	0%	6%	9%	2%	3%	2%	2%	2%	2%
Lane Group Flow (vph) 0 0 0 184 59 0 249 0 0 0 0 Enter Blocked Intersection No	• ,	0	0	0	0	184	59	0	249	0	0	0	0
Enter Blocked Intersection No 10 No No <th< td=""><td>Shared Lane Traffic (%)</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>	Shared Lane Traffic (%)												
Lane Alignment Left Left Right Left Right Left Left Left Right Left Right Left Right Left Right Left Right Left Right Left Left Right Left Left Right Left Left Left Right Left	Lane Group Flow (vph)	0	0	0	0	184	59	0	249	0	0	0	0
Median Width(ff) 0 0 0 0 Link Offset(ft) 0 0 0 0 Crosswalk Width(ft) 16 16 16 16 Two way Left Turn Lane 1.14 </td <td>Enter Blocked Intersection</td> <td>No</td>	Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Median Width(fft) 0 0 0 Link Offset(ft) 0 0 0 Crosswalk Width(ft) 16 16 16 Two way Left Turn Lane Headway Factor 1.14	Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Crosswalk Width(ft) 16 16 16 16 Two way Left Turn Lane 1.14 <td< td=""><td>Median Width(ft)</td><td></td><td>0</td><td></td><td></td><td>0</td><td></td><td></td><td>0</td><td></td><td></td><td>0</td><td></td></td<>	Median Width(ft)		0			0			0			0	
Two way Left Turn Lane Headway Factor 1.14	Link Offset(ft)		0			0			0			0	
Headway Factor 1.14	Crosswalk Width(ft)		16			16			16			16	
Turning Speed (mph) 15 9 15 9 15 9 15 9 Number of Detectors 2 1 2 2 1 2 2 1 2 1 2 1 2 1	Two way Left Turn Lane												
Number of Detectors 2 1 2 Detector Template Thru Right Thru Leading Detector (ft) 100 20 100 Trailing Detector (ft) 0 0 0 Detector 1 Position(ft) 0 0 0 Detector 1 Size(ft) 6 20 6	Headway Factor	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
Detector Template Thru Right Thru Leading Detector (ft) 100 20 100 Trailing Detector (ft) 0 0 0 Detector 1 Position(ft) 0 0 0 Detector 1 Size(ft) 6 20 6	Turning Speed (mph)	15		9	15		9	15		9	15		9
Leading Detector (ft) 100 20 100 Trailing Detector (ft) 0 0 0 Detector 1 Position(ft) 0 0 0 Detector 1 Size(ft) 6 20 6	Number of Detectors					2	1		2				
Trailing Detector (ft) 0 0 Detector 1 Position(ft) 0 0 Detector 1 Size(ft) 6 20 6	Detector Template					Thru	Right		Thru				
Detector 1 Position(ft) 0 0 0 Detector 1 Size(ft) 6 20 6	Leading Detector (ft)					100	20		100				
Detector 1 Size(ft) 6 20 6	Trailing Detector (ft)					0	0		0				
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Detector 1 Position(ft)					0	0		0				
	Detector 1 Size(ft)					6	20		6				
Detector 1 Type CI+Ex CI+Ex CI+Ex	Detector 1 Type					Cl+Ex	CI+Ex		CI+Ex				
Detector 1 Channel	Detector 1 Channel												
Detector 1 Extend (s) 0.0 0.0 0.0	Detector 1 Extend (s)					0.0	0.0		0.0				
Detector 1 Queue (s) 0.0 0.0 0.0	Detector 1 Queue (s)					0.0	0.0		0.0				
Detector 1 Delay (s) 0.0 0.0 0.0	Detector 1 Delay (s)					0.0	0.0		0.0				
Detector 2 Position(ft) 94 94						94			94				
Detector 2 Size(ft) 6	Detector 2 Size(ft)					6			6				
Detector 2 Type CI+Ex CI+Ex	Detector 2 Type					CI+Ex			CI+Ex				
Detector 2 Channel	Detector 2 Channel												
Detector 2 Extend (s) 0.0 0.0	Detector 2 Extend (s)					0.0			0.0				

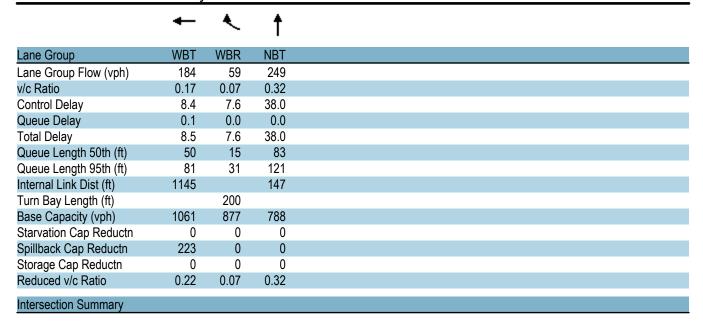
Lane Group	Ø2	Ø4
Lane Configurations	WL.	VT
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Number of Detectors		
Detector Template		
Leading Detector (ft)		
Trailing Detector (ft)		
Detector 1 Position(ft)		
Detector 1 Size(ft)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(ft)		
Detector 2 Size(ft)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type					NA	Prot		NA				
Protected Phases					24	2 4		3				
Permitted Phases												
Detector Phase					2 4	2 4		3				
Switch Phase												
Minimum Initial (s)								10.0				
Minimum Split (s)								19.0				
Total Split (s)								36.0				
Total Split (%)								30.0%				
Maximum Green (s)								30.0				
Yellow Time (s)								4.0				
All-Red Time (s)								2.0				
Lost Time Adjust (s)								0.0				
Total Lost Time (s)								6.0				
Lead/Lag								Lead				
Lead-Lag Optimize?												
Vehicle Extension (s)								3.0				
Recall Mode								Max				
Walk Time (s)								5.0				
Flash Dont Walk (s)								8.0				
Pedestrian Calls (#/hr)								0				
Act Effct Green (s)					79.0	79.0		30.0				
Actuated g/C Ratio					0.66	0.66		0.25				
v/c Ratio					0.17	0.07		0.32				
Control Delay					8.4	7.6		38.0				
Queue Delay					0.1	0.0		0.0				
Total Delay					8.5	7.6		38.0				
LOS					Α	Α		D				
Approach Delay					8.3			38.0				
Approach LOS					Α			D				
Intersection Summary												
Area Type: CB	D											
Cycle Length: 120												
Actuated Cycle Length: 120												
Offset: 16 (13%), Referenced t	o phase	2:WBT, \$	Start of G	reen								
Natural Cycle: 110												
Control Type: Actuated-Coordi	nated											
Maximum v/c Ratio: 1.09												
Intersection Signal Delay: 23.3					tersection							
Intersection Capacity Utilization	n 27.4%			IC	CU Level o	of Service	Α					
Analysis Period (min) 15												

Splits and Phases: 13: Alewife Brook Parkway & Route 2/Rt 2 WB Access



1 0	ac.	~1
Lane Group	Ø2	Ø4
Turn Type		
Protected Phases	2	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	10.0	10.0
Minimum Split (s)	15.0	15.0
Total Split (s)	58.0	26.0
Total Split (%)	48%	22%
Maximum Green (s)	53.0	21.0
Yellow Time (s)	4.0	3.5
All-Red Time (s)	1.0	1.5
Lost Time Adjust (s)	-	
Total Lost Time (s)		
Lead/Lag		Lag
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	3.0
Recall Mode	C-Max	Max
Walk Time (s)	o max	11107
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay LOS		
Approach Delay		
Approach LOS		
Intersection Summary		



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Lane Group	SBL	SBR	SEL	SET	NWT	NWR	Ø2	Ø4		
Lane Configurations	ሻሻ			^						
Traffic Volume (vph)	506	0	0	1102	0	0				
Future Volume (vph)	506	0	0	1102	0	0				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900				
Lane Width (ft)	13	13	13	13	13	13				
Lane Util. Factor	0.97	1.00	1.00	0.95	1.00	1.00				
Frt										
Flt Protected	0.950									
Satd. Flow (prot)	3193	0	0	3324	0	0				
FIt Permitted	0.950									
Satd. Flow (perm)	3193	0	0	3324	0	0				
Right Turn on Red	Yes	Yes				Yes				
Satd. Flow (RTOR)	216									
Link Speed (mph)	30			30	30					
Link Distance (ft)	155			297	139					
Travel Time (s)	3.5			6.8	3.2					
Peak Hour Factor	0.85	0.92	0.92	0.97	0.92	0.92				
Heavy Vehicles (%)	2%	2%	2%	1%	2%	2%				
Adj. Flow (vph)	595	0	0	1136	0	0				
Shared Lane Traffic (%)										
Lane Group Flow (vph)	595	0	0	1136	0	0				
Enter Blocked Intersection	No	No	No	No	No	No				
Lane Alignment	Left	Right	Left	Left	Left	Right				
Median Width(ft)	26			0	0	<u> </u>				
Link Offset(ft)	0			0	0					
Crosswalk Width(ft)	16			16	16					
Two way Left Turn Lane										
Headway Factor	1.10	1.10	1.10	1.10	1.10	1.10				
Turning Speed (mph)	30	9	15			9				
Number of Detectors	1			2						
Detector Template	Left			Thru						
Leading Detector (ft)	20			100						
Trailing Detector (ft)	0			0						
Detector 1 Position(ft)	0			0						
Detector 1 Size(ft)	20			6						
Detector 1 Type	Cl+Ex			CI+Ex						
Detector 1 Channel										
Detector 1 Extend (s)	0.0			0.0						
Detector 1 Queue (s)	0.0			0.0						
Detector 1 Delay (s)	0.0			0.0						
Detector 2 Position(ft)				94						
Detector 2 Size(ft)				6						
Detector 2 Type				CI+Ex						
Detector 2 Channel										
Detector 2 Extend (s)				0.0						
Turn Type	Prot			NA						
Protected Phases	3			2 4			2	4		
Permitted Phases										
Detector Phase	3			2 4						

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Lane Group	SBL	SBR	SEL	SET	NWT	NWR	Ø2	Ø4
Switch Phase	SDL	SDR	SEL	SET	INVVI	INVVI	WZ	<i>1</i> 04
Minimum Initial (s)	10.0						10.0	10.0
Minimum Split (s)	19.0						15.0	15.0
	36.0						58.0	26.0
Total Split (s)	30.0%						48%	22%
Total Split (%) Maximum Green (s)	30.0%						53.0	21.0
	4.0						4.0	3.5
Yellow Time (s)	2.0						1.0	1.5
All-Red Time (s) Lost Time Adjust (s)	0.0						1.0	1.5
• ()	6.0							
Total Lost Time (s) Lead/Lag								Log
Lead-Lag Optimize?	Lead							Lag
Vehicle Extension (s)	3.0						3.0	3.0
Recall Mode	Max						C-Max	Max
Walk Time (s)	5.0						C-IVIAX	IVIAX
Flash Dont Walk (s)	8.0							
Pedestrian Calls (#/hr)	0.0							
Act Effct Green (s)	30.0			79.0				
Actuated g/C Ratio	0.25			0.66				
v/c Ratio	0.23			0.52				
Control Delay	2.8			11.7				
Queue Delay	1.0			0.0				
Total Delay	3.7			11.7				
LOS	Α			В				
Approach Delay	3.7			11.7				
Approach LOS	Α			В				
Intersection Summary								
Area Type:	CBD							
Cycle Length: 120								
Actuated Cycle Length: 12	.0							
Offset: 16 (13%), Reference	ced to phase	2:WBT, 9	Start of G	Green				
Natural Cycle: 110								
Control Type: Actuated-Co	ordinated							
Maximum v/c Ratio: 1.09								
Intersection Signal Delay:					tersection			
Intersection Capacity Utiliz	ation 59.1%			IC	U Level	of Service	е В	

Splits and Phases: 14: Alewife Brook Parkway & Route 2

▲ Ø2 (R)

Analysis Period (min) 15

#11 #12 #13 #14

	<u>L</u>	`
Lane Group	SBL	SET
Lane Group Flow (vph)	595	1136
v/c Ratio	0.62	0.52
Control Delay	2.8	11.7
Queue Delay	1.0	0.0
Total Delay	3.7	11.7
Queue Length 50th (ft)	5	220
Queue Length 95th (ft)	0	272
Internal Link Dist (ft)	75	217
Turn Bay Length (ft)		
Base Capacity (vph)	960	2188
Starvation Cap Reductn	156	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.74	0.52
Intersection Summary		
intersection Summary		

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		+			†							
Traffic Volume (vph)	0	618	0	0	1163	0	0	0	0	0	0	0
Future Volume (vph)	0	618	0	0	1163	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	15	16	16	16	12	12	12	12	12	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	2049	0	0	2153	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	2049	0	0	2153	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		135			215			175			206	
Travel Time (s)		3.1			4.9			4.0			4.7	
Peak Hour Factor	0.84	0.84	0.84	0.97	0.97	0.97	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	736	0	0	1199	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	736	0	0	1199	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0	- J		0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.88	0.88	0.88	0.85	0.85	0.85	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (ft)		100			100							
Trailing Detector (ft)		0			0							
Detector 1 Position(ft)		0			0							
Detector 1 Size(ft)		6			6							
Detector 1 Type		CI+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			6							
Permitted Phases												
Detector Phase		2			6							

Lane Group Ø9
Lane Configurations
Traffic Volume (vph)
Future Volume (vph)
Ideal Flow (vphpl)
Lane Width (ft)
Lane Util. Factor
Frt
Fit Protected
Satd. Flow (prot)
FIt Permitted
Satd. Flow (perm)
Right Turn on Red
Satd. Flow (RTOR)
Link Speed (mph)
Link Distance (ft)
Travel Time (s)
Peak Hour Factor
Heavy Vehicles (%)
Adj. Flow (vph)
Shared Lane Traffic (%)
Lane Group Flow (vph)
Enter Blocked Intersection
Lane Alignment
Median Width(ft)
Link Offset(ft)
Crosswalk Width(ft)
Two way Left Turn Lane
Headway Factor
Turning Speed (mph)
Number of Detectors
Detector Template
Leading Detector (ft)
Trailing Detector (ft)
Detector 1 Position(ft)
Detector 1 Size(ft)
Detector 1 Type
Detector 1 Channel
Detector 1 Extend (s)
Detector 1 Queue (s)
Detector 1 Delay (s)
Detector 2 Position(ft)
Detector 2 Size(ft)
Detector 2 Type
Detector 2 Channel
Detector 2 Extend (s)
Turn Type
Protected Phases 9
Permitted Phases
Detector Phase

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)		4.0			4.0							
Minimum Split (s)		20.5			20.5							
Total Split (s)		47.0			47.0							
Total Split (%)		67.1%			67.1%							
Maximum Green (s)		42.5			42.5							
Yellow Time (s)		3.5			3.5							
All-Red Time (s)		1.0			1.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		4.5			4.5							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0			3.0							
Recall Mode		C-Max			C-Max							
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)		47.5			47.5							
Act Effet Green (s)		47.5			47.5							
Actuated g/C Ratio		0.68			0.68							
v/c Ratio		0.53			0.82							
Control Delay		7.4 53.1			17.3							
Queue Delay		60.4			50.4 67.6							
Total Delay LOS		60.4 E			67.0 E							
Approach Delay		60.4			67.6							
Approach LOS		00.4 E			67.0 E							
					L							
Intersection Summary Area Type: Oth	ner											
Cycle Length: 70	101											
Actuated Cycle Length: 70												
Offset: 16 (23%), Referenced t	o phase	2·FBT ar	nd 6·WBT	Start of	Green							
Natural Cycle: 75	o pridoc	2.25 T G	ia 0.112 i	, otali oi	0.00							
Control Type: Actuated-Coordi	nated											
Maximum v/c Ratio: 0.82												
Intersection Signal Delay: 64.9				In	tersection	LOS: E						
Intersection Capacity Utilization				IC	CU Level o	of Service	С					
Analysis Period (min) 15												
Splits and Phases: 36: Minu	teman C	ommuter	Bikeway	& Lake S	Street							
→ Ø2 (R)								Åkø9				
47 s								23 s				
1 4												

Lane Group	Ø9
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	23.0
Total Split (s)	23.0
Total Split (%)	33%
Maximum Green (s)	21.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	304
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

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	-	
Lane Group	EBT	WBT
Lane Group Flow (vph)	736	1199
v/c Ratio	0.53	0.82
Control Delay	7.4	17.3
Queue Delay	53.1	50.4
Total Delay	60.4	67.6
Queue Length 50th (ft)	132	569
Queue Length 95th (ft)	180	m580
Internal Link Dist (ft)	55	135
Turn Bay Length (ft)		
Base Capacity (vph)	1390	1460
Starvation Cap Reductn	0	729
Spillback Cap Reductn	804	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	1.26	1.64
Intersection Summary		
m Volume for 05th perce	ا مینمینم دانام	

m Volume for 95th percentile queue is metered by upstream signal.

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Volume (vph)	31	541	46	6	1004	0	38	4	5	3	7	121
Future Volume (vph)	31	541	46	6	1004	0	38	4	5	3	7	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	14	13	13	13	12	12	12	12	12	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.990						0.985			0.875	
Flt Protected		0.998						0.961			0.999	
Satd. Flow (prot)	0	1978	0	0	1944	0	0	1799	0	0	1661	0
FIt Permitted		0.918			0.997			0.487			0.993	
Satd. Flow (perm)	0	1819	0	0	1938	0	0	911	0	0	1651	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6						7			155	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		215			1126			206			208	
Travel Time (s)		4.9			25.6			4.7			4.7	
Peak Hour Factor	0.91	0.91	0.91	0.87	0.87	0.87	0.75	0.75	0.75	0.78	0.78	0.78
Heavy Vehicles (%)	0%	1%	5%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	34	595	51	7	1154	0	51	5	7	4	9	155
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	680	0	0	1161	0	0	63	0	0	168	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.92	0.92	0.92	0.96	0.96	0.96	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	CI+Ex	Cl+Ex		CI+Ex	Cl+Ex		CI+Ex	CI+Ex		Cl+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		2			6		3	8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		3	8		4	4	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s) Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	• ————————————————————————————————————
Detector Phase	

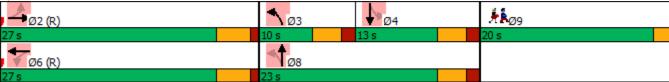
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.5	20.5		20.5	20.5		9.0	21.0		13.0	13.0	
Total Split (s)	27.0	27.0		27.0	27.0		10.0	23.0		13.0	13.0	
Total Split (%)	38.6%	38.6%		38.6%	38.6%		14.3%	32.9%		18.6%	18.6%	
Maximum Green (s)	22.5	22.5		22.5	22.5		5.5	18.5		8.5	8.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.5			4.5			4.5			4.5	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	Min		Min	Min	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		40.9			40.9			9.3			9.3	
Actuated g/C Ratio		0.58			0.58			0.13			0.13	
v/c Ratio		0.64			1.03			0.50			0.48	
Control Delay		23.3			56.0			38.1			10.7	
Queue Delay		29.6			31.1			0.0			0.4	
Total Delay		52.9			87.1			38.1			11.2	
LOS		D			F			D			В	
Approach Delay		52.9			87.1			38.1			11.2	
Approach LOS		D			F			D			В	
Intersection Summary												
Area Type:	Other											
Cycle Length: 70												
Actuated Cycle Length: 70												
Offset: 0 (0%), Reference	d to phase 2	:EBTL and	d 6:WBTI	L, Start of	f Green, M	laster Inte	ersection					
Natural Cycle: 110												
Control Type: Actuated-Co	oordinated											
Maximum v/c Ratio: 1.03												

Maximum v/c Ratio: 1.03

Intersection Signal Delay: 68.2 Intersection LOS: E Intersection Capacity Utilization 77.4% ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 39: Brooks Avenue & Lake Street



Lane Group	Ø9
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	18.0
Total Split (s)	20.0
Total Split (%)	29%
Maximum Green (s)	18.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	52
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

	-	←	†	Ţ
				*
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	680	1161	63	168
v/c Ratio	0.64	1.03	0.50	0.48
Control Delay	23.3	56.0	38.1	10.7
Queue Delay	29.6	31.1	0.0	0.4
Total Delay	52.9	87.1	38.1	11.2
Queue Length 50th (ft)	246	~635	23	5
Queue Length 95th (ft)	#442	#877	44	35
Internal Link Dist (ft)	135	1046	126	128
Turn Bay Length (ft)				
Base Capacity (vph)	1065	1132	245	372
Starvation Cap Reductn	411	0	0	0
Spillback Cap Reductn	0	478	1	37
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.04	1.78	0.26	0.50

Queue shown is maximum after two cycles.

Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

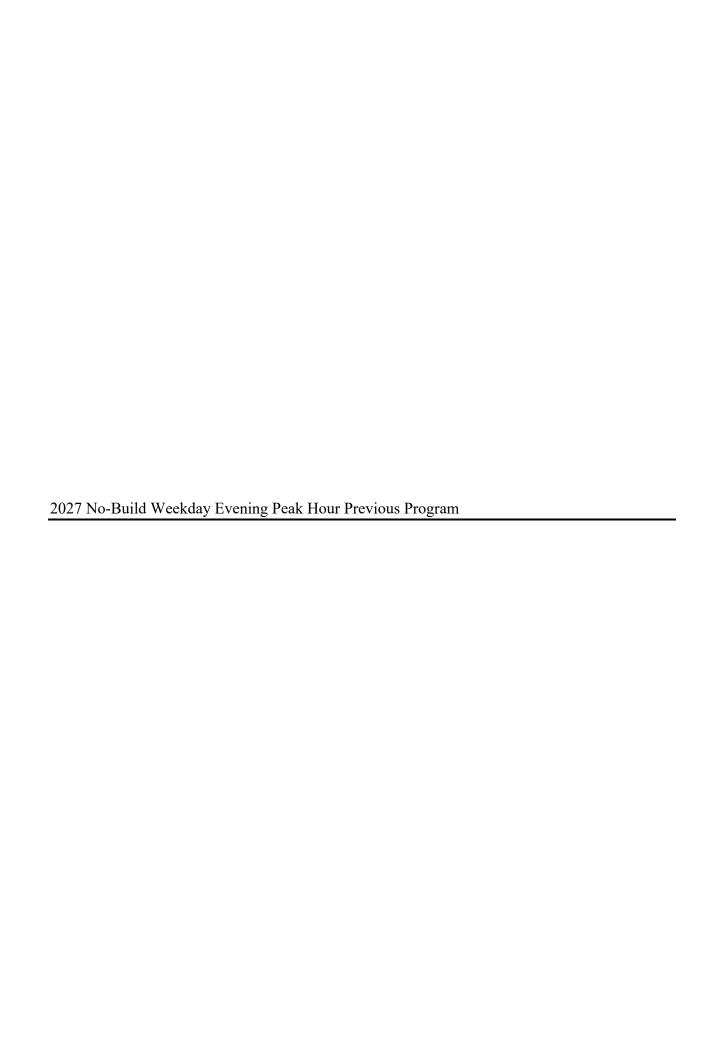
Intersection						
Int Delay, s/veh	0.3					
<u> </u>		ED.5	14/51	MAIDT	NE	NES
	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	₽			र्स	¥	
Traffic Vol, veh/h	614	3	1	1189	5	1
Future Vol, veh/h	614	3	1	1189	5	1
Conflicting Peds, #/hr	0	0	0	0	0	0
•	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage,	# 0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	87	87	75	75
Heavy Vehicles, %	2	0	0	1	0	0
Mvmt Flow	819	4	1	1367	7	1
	ajor1		Major2		/linor1	
Conflicting Flow All	0	0	823	0	2190	821
Stage 1	-	-	-	-	821	-
Stage 2	-	-	-	-	1369	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	816	-	51	378
Stage 1	-	-	-	-	436	-
Stage 2	-	-	-	-	239	-
Platoon blocked, %	_	-		-		
Mov Cap-1 Maneuver	_	_	816	_	51	378
Mov Cap-2 Maneuver	_	<u>-</u>	-	_	51	-
Stage 1	_	_	_	_	436	_
Stage 2		_	_	_	238	_
Glage Z		-	_	_	200	_
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		74	
HCM LOS					F	
Minor Long/Major Marret		JDI1	CDT	EDD	WDI	WDT
Minor Lane/Major Mvmt	ſ	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)		60	-	-	816	-
HCM Lane V/C Ratio		0.133	-	-	0.001	-
HCM Control Delay (s)		74	-	-	9.4	0
HCM Lane LOS		F	-	-	Α	Α
HCM 95th %tile Q(veh)		0.4	-	-	0	-

Intersection Int Delay, s/veh 2 Movement EBT EBR WBL WBT NBL NBR Lane Configurations
Movement
Lane Configurations
Traffic Vol, veh/h 601 14 5 1166 24 6 Future Vol, veh/h 601 14 5 1166 24 6 Conflicting Peds, #/hr 0 0 0 0 0 0 Sign Control Free Free Free Free Free Free Stop Stop RT Channelized - None - None - None None None - 0 0 0 0 0 0 0 0 0 0 0 0 0
Future Vol, veh/h 601 14 5 1166 24 6 Conflicting Peds, #/hr 0 0 0 0 0 0 0 Sign Control Free Free Free Free Free Free Stop Stop RT Channelized - None - None - None Storage Length - - - 0 - - 0 - Veh in Median Storage, # 0 - - 0 0 - Grade, % 0 - - 0 0 - Peak Hour Factor 75 75 93 93 75 75 Heavy Vehicles, % 2 0 0 1 0 0 Morrison 801 19 5 1254 32 8 Morrison 801 19 5 1254 32 8 Morrison Majort <
Conflicting Peds, #/hr O O O O O O Sign Control Free Free Free Free Free Stop Stop RT Channelized - None - None - None Storage Length - - - O O O O O O O
Sign Control Free RTC RT Channelized Free RT Channelized Free RT Channelized Free RT Channelized RT Channelized None None<
RT Channelized - None - None - None Storage Length 0 0 0 - - O 0 0 - Veh in Median Storage, # 0 0 0 0 - - O 0 0 - - O 0 0 - Grade, % 0 0 0 0 0 - - O 0 0 0 - - O 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Storage Length
Veh in Median Storage, # 0 - - 0 0 - Grade, % 0 - - 0 0 - Peak Hour Factor 75 75 93 93 75 75 Heavy Vehicles, % 2 0 0 1 0 0 Mwmt Flow 801 19 5 1254 32 8 Major/Minor Major Major Mwmt Major Major Mwmt Minor Major Mwmt Minor Major Mwmt Minor Major Mymt Major
Grade, % 0 - - 0 0 - Peak Hour Factor 75 75 93 93 75 75 Heavy Vehicles, % 2 0 0 1 0 0 Mwmt Flow 801 19 5 1254 32 8 Major/Minor Major Major Mwmt Major Major Mwmt Minor Major Mwmt Minor Major Mwmt Minor Major Mwmt Minor Major Mymt Minor Major Mymt Major M
Peak Hour Factor 75 75 93 93 75 75 Heavy Vehicles, % 2 0 0 1 0 0 Mwmt Flow 801 19 5 1254 32 8 Major/Minor Major1 Major2 Minor1 Minor1 Conflicting Flow All 0 0 820 0 2075 811 Stage 1 - - - 811 - - 811 - - 811 - - 811 - - 811 - - - 811 - - 811 - - - 811 - - - 811 - - - 811 -
Heavy Vehicles, % 2 0 0 1 0 0 Mvmt Flow 801 19 5 1254 32 8 Major/Minor Major1 Major2 Minor1 Conflicting Flow All 0 0 820 0 2075 811 Stage 1 - - - 811 - 811 - 811 - 811 - 811 - 811 - 811 - 811 - 811 - 811 - 811 - 811 - 811 - 60 46 2 Critical Hdwy - - 4.1 - 6.4 6.2 Critical Hdwy Stg 2 - - - 5.4 - - F 5.4 - - - 5.4 - - - 5.3 3.3 Pot Cap-1 Maneuver - 818 - 59 383 Mov Cap-2 Maneuver - - <t< td=""></t<>
Momental Major Majo
Major/Minor Major1 Major2 Minor1 Conflicting Flow All 0 0 820 0 2075 811 Stage 1 - - - 811 - Stage 2 - - - 1264 - Critical Hdwy - - 4.1 - 6.4 6.2 Critical Hdwy Stg 1 - - - 5.4 - Critical Hdwy Stg 2 - - - 5.4 - Follow-up Hdwy - - 2.2 - 3.5 3.3 Pot Cap-1 Maneuver - 818 - 60 383 Stage 1 - - - 440 - Stage 2 - - - - 59 383 Mov Cap-1 Maneuver - 818 - 59 383 Mov Cap-2 Maneuver - - - - 440 - Stage 2
Conflicting Flow All 0 0 820 0 2075 811 Stage 1 - - - 811 - Stage 2 - - - 811 - Critical Hdwy - - 4.1 - 6.4 6.2 Critical Hdwy Stg 1 - - - 5.4 - Critical Hdwy Stg 2 - - - 5.4 - Critical Hdwy Stg 2 - - - 5.4 - Critical Hdwy Stg 2 - - - 5.4 - Critical Hdwy Stg 2 - - - 5.4 - Follow-up Hdwy - - 2.2 3.5 3.3 Pot Cap-1 Maneuver - 818 - 60 383 Stage 2 - - - 59 383 Mov Cap-1 Maneuver - - - 59 - Stage 1 - </td
Conflicting Flow All 0 0 820 0 2075 811 Stage 1 - - - - 811 - Stage 2 - - - - 811 - Critical Hdwy - - 4.1 - 6.4 6.2 Critical Hdwy Stg 1 - - - 5.4 - Critical Hdwy Stg 2 - - - 5.4 - Critical Hdwy Stg 2 - - - 5.4 - Critical Hdwy Stg 1 - - - 5.4 - Critical Hdwy Stg 2 - - - 5.4 - Follow-up Hdwy - - 2.2 3.5 3.3 Pot Cap-1 Maneuver - 818 - 60 383 Stage 2 - - - 59 383 Mov Cap-1 Maneuver - - 818 - 59 -
Conflicting Flow All 0 0 820 0 2075 811 Stage 1 - - - - 811 - Stage 2 - - - - 811 - Critical Hdwy - - 4.1 - 6.4 6.2 Critical Hdwy Stg 1 - - - 5.4 - Critical Hdwy Stg 2 - - - 5.4 - Critical Hdwy Stg 2 - - - 5.4 - Critical Hdwy Stg 1 - - - 5.4 - Critical Hdwy Stg 2 - - - 5.4 - Follow-up Hdwy - - 2.2 3.5 3.3 Pot Cap-1 Maneuver - 818 - 60 383 Stage 2 - - - 59 383 Mov Cap-1 Maneuver - - 818 - 59 -
Stage 1 - - - 811 - Stage 2 - - - 1264 - Critical Hdwy - - 4.1 - 6.4 6.2 Critical Hdwy Stg 1 - - - 5.4 - Critical Hdwy Stg 2 - - - 5.4 - Follow-up Hdwy - - 2.2 - 3.5 3.3 Pot Cap-1 Maneuver - 818 - 60 383 Stage 1 - - - 268 - Platoon blocked, % - - - - 440 - Mov Cap-1 Maneuver - 818 - 59 383 Mov Cap-2 Maneuver - - - 59 - Stage 1 - - - - 440 - Stage 2 - - - - 263 - Approach EB WB NB HCM Control Delay, s 0 0
Stage 2 - - - 1264 - Critical Hdwy - - 4.1 - 6.4 6.2 Critical Hdwy Stg 1 - - - 5.4 - Critical Hdwy Stg 2 - - - 5.4 - Follow-up Hdwy - - 2.2 - 3.5 3.3 Pot Cap-1 Maneuver - - 818 - 60 383 Stage 1 - - - - 440 - Stage 2 - - - - - - Mov Cap-1 Maneuver - - 818 - 59 383 Mov Cap-2 Maneuver - - - - 59 - Stage 1 - - - - - 263 - Approach EB WB NB HCM Control Delay, s 0 0 107.5 HCM LOS F Minor Lane/Major Mvmt NBLn1 EBT EBR WBL WBL Table NBL BBR WBL BBR WBL MBC Table N
Critical Hdwy - 4.1 - 6.4 6.2 Critical Hdwy Stg 1 - - - 5.4 - Critical Hdwy Stg 2 - - - 5.4 - Follow-up Hdwy - - 2.2 - 3.5 3.3 Pot Cap-1 Maneuver - 818 - 60 383 Stage 1 - - - - 440 - Stage 2 - - - - - 268 - Platoon blocked, % -
Critical Hdwy Stg 1 - - - 5.4 - Critical Hdwy Stg 2 - - - 5.4 - Follow-up Hdwy - - 2.2 - 3.5 3.3 Pot Cap-1 Maneuver - 818 - 60 383 Stage 1 - - - 440 - Stage 2 - - - 268 - Platoon blocked, % - - - - - - Mov Cap-1 Maneuver - - 818 - 59 383 Mov Cap-2 Maneuver - - - - 59 - Stage 1 - - - - - 440 - Stage 2 - - - - - 263 - Approach EB WB NB NB - - - - - - - <td< td=""></td<>
Critical Hdwy Stg 2 - - - 5.4 - Follow-up Hdwy - - 2.2 - 3.5 3.3 Pot Cap-1 Maneuver - - 818 - 60 383 Stage 1 - - - - 440 - Stage 2 - - - - 268 - Platoon blocked, % - - - - - - Mov Cap-1 Maneuver - - 818 - 59 383 Mov Cap-2 Maneuver - - - - 59 - Stage 1 - - - - 440 - Stage 2 - - - - 263 - Approach EB WB NB HCM Control Delay, s 0 0 107.5 HCM LOS F Minor Lane/Major Mvmt NBLn1 EBT EBR
Follow-up Hdwy 2.2 - 3.5 3.3 Pot Cap-1 Maneuver - 818 - 60 383 Stage 1 440 - Stage 2 268 - Platoon blocked, % Mov Cap-1 Maneuver - 818 - 59 383 Mov Cap-2 Maneuver 818 - 59 383 Mov Cap-2 Maneuver 59 - Stage 1 440 - Stage 2 263 - Approach EB WB NB HCM Control Delay, s 0 0 107.5 HCM LOS F Minor Lane/Major Mvmt NBLn1 EBT EBR WBL WBT Capacity (veh/h) 71 - 818 -
Pot Cap-1 Maneuver - - 818 - 60 383 Stage 1 - - - 440 - Stage 2 - - - 268 - Platoon blocked, % - - - - - Mov Cap-1 Maneuver - 818 - 59 383 Mov Cap-2 Maneuver - - - 59 - Stage 1 - - - - 440 - Stage 2 - - - 263 - Approach EB WB NB HCM Control Delay, s 0 0 107.5 HCM LOS F Minor Lane/Major Mvmt NBLn1 EBT EBR WBL WBT Capacity (veh/h) 71 - 818 - 60 383
Stage 1 - - - 440 - Stage 2 - - - 268 - Platoon blocked, % - - - - Mov Cap-1 Maneuver - - 818 - 59 383 Mov Cap-2 Maneuver - - - - 59 - Stage 1 - - - - 440 - Stage 2 - - - - 263 - Approach EB WB NB HCM Control Delay, s O 107.5 HCM LOS F Minor Lane/Major Mvmt NBLn1 EBT EBR WBL WBT Capacity (veh/h) 71 - - 818 -
Stage 2 - - - 268 - Platoon blocked, % - - - - - Mov Cap-1 Maneuver - - 818 - 59 383 Mov Cap-2 Maneuver - - - - 59 - Stage 1 - - - - 440 - Stage 2 - - - - 263 - Approach EB WB NB HCM Control Delay, s 0 0 107.5 - HCM LOS F Minor Lane/Major Mvmt NBLn1 EBT EBR WBL WBT Capacity (veh/h) 71 - 818 -
Platoon blocked, % - - - Mov Cap-1 Maneuver - - 818 - 59 383 Mov Cap-2 Maneuver - - - - 59 - Stage 1 - - - - 440 - Stage 2 - - - - 263 - Approach EB WB NB NB HCM Control Delay, s 0 0 107.5 - HCM LOS F F Minor Lane/Major Mvmt NBLn1 EBT EBR WBL WBT Capacity (veh/h) 71 - 818 -
Platoon blocked, % - - - Mov Cap-1 Maneuver - - 818 - 59 383 Mov Cap-2 Maneuver - - - - 59 - Stage 1 - - - - 440 - Stage 2 - - - - 263 - Approach EB WB NB NB HCM Control Delay, s 0 0 107.5 F Minor Lane/Major Mvmt NBLn1 EBT EBR WBL WBT Capacity (veh/h) 71 - 818 -
Mov Cap-1 Maneuver - - 818 - 59 383 Mov Cap-2 Maneuver - - - - 59 - Stage 1 - - - - 440 - Stage 2 - - - - 263 - Approach EB WB NB NB HCM Control Delay, s 0 0 107.5 HCM LOS F F Minor Lane/Major Mvmt NBLn1 EBT EBR WBL WBT Capacity (veh/h) 71 - 818 -
Mov Cap-2 Maneuver - - 59 - Stage 1 - - - 440 - Stage 2 - - - 263 - Approach EB WB NB HCM Control Delay, s 0 0 107.5 HCM LOS F Minor Lane/Major Mvmt NBLn1 EBT EBR WBL WBT Capacity (veh/h) 71 - 818 -
Stage 1 - - - 440 - Stage 2 - - - 263 - Approach EB WB NB HCM Control Delay, s 0 0 107.5 HCM LOS F Minor Lane/Major Mvmt NBLn1 EBT EBR WBL WBT Capacity (veh/h) 71 - 818 -
Stage 2 - - - 263 - Approach EB WB NB HCM Control Delay, s 0 0 107.5 HCM LOS F Minor Lane/Major Mvmt NBLn1 EBT EBR WBL WBT Capacity (veh/h) 71 - 818 -
Approach EB WB NB HCM Control Delay, s 0 0 107.5 HCM LOS F Minor Lane/Major Mvmt NBLn1 EBT EBR WBL WBT Capacity (veh/h) 71 - 818 -
HCM Control Delay, s
HCM Control Delay, s 0 0 107.5 HCM LOS F Minor Lane/Major Mvmt NBLn1 EBT EBR WBL WBT Capacity (veh/h) 71 - 818 -
Minor Lane/Major Mvmt NBLn1 EBT EBR WBL WBT Capacity (veh/h) 71 - - 818 -
Minor Lane/Major Mvmt NBLn1 EBT EBR WBL WBT Capacity (veh/h) 71 - - 818 -
Capacity (veh/h) 71 818 -
Capacity (veh/h) 71 818 -
Capacity (veh/h) 71 818 -
HCM Lane V/C Ratio 0.563 0.007 -
HCM Control Delay (s) 107.5 9.4 0
HCM Lane LOS F A A
HCM 95th %tile Q(veh) 2.4 0 -

Intersection						
Int Delay, s/veh	0.4					
<u> </u>		EDD	14/51	MAIDT	NE	NES
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	₽			र्स	¥	
Traffic Vol, veh/h	605	5	3	1164	7	1
Future Vol, veh/h	605	5	3	1164	7	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage,	# 0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	93	93	75	75
Heavy Vehicles, %	2	0	0	1	0	0
Mvmt Flow	807	7	3	1252	9	1
		-				•
	/lajor1		//ajor2		Minor1	
Conflicting Flow All	0	0	814	0	2069	811
Stage 1	-	-	-	-	811	-
Stage 2	-	-	-	-	1258	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	_	_	822	_	60	383
Stage 1	_	_	-	_	440	-
Stage 2	-	-	-	-	270	-
Platoon blocked, %	<u>-</u>	<u>-</u>		_	_, 0	
Mov Cap-1 Maneuver			822		59	383
Mov Cap-1 Maneuver	_	_	- 022	_	59	-
	-	-	-	-	440	-
Stage 1	-	-	-	-		
Stage 2	-	-	-	-	267	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		69.8	
HCM LOS	•				F	
					'	
Minor Lane/Major Mvmt	t 1	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)		66	_	-	822	-
HCM Lane V/C Ratio		0.162	-	-	0.004	-
HCM Control Delay (s)		69.8	-	-	9.4	0
HCM Lane LOS		F	-	-	Α	Α
HCM 95th %tile Q(veh)		0.5	_	-	0	_
2000 2(100)						

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Vol, veh/h	0	585	18	8	1148	5	8	0	14	4	0	11
Future Vol, veh/h	0	585	18	8	1148	5	8	0	14	4	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage,	# -	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	96	96	96	80	80	80	92	92	92
Heavy Vehicles, %	0	1	0	0	0	0	0	0	10	0	0	0
Mvmt Flow	0	741	23	8	1196	5	10	0	18	4	0	12
Major/Minor N	1ajor1		ı	Major2			Minor1			Minor2		
Conflicting Flow All	1201	0	0	764	0	0	1974	1970	753	1977	1979	1199
Stage 1	1201	U	U	704	U	U	753	753	100	1215	1215	1133
Stage 1 Stage 2	-	-	-	-	-	•	1221	1217	_	762	764	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.3	7.1	6.5	6.2
Critical Hdwy Stg 1	4.1	-	-	4.1	_	-	6.1	5.5	0.3	6.1	5.5	0.2
	-	-	-		-	-	6.1	5.5	-	6.1	5.5	
Critical Hdwy Stg 2	2.2	=	=	2.2	-	-	3.5	5.5	3.39	3.5	5.5 4	3.3
Follow-up Hdwy		-	-		-	-	3.5 47	63		3.5 47	62	228
Pot Cap-1 Maneuver	588	-	-	858	-	-			397			
Stage 1	-	-	-	-	-	-	405	420	-	224	256	-
Stage 2	-	-	-	-	-	-	222	256	-	400	416	-
Platoon blocked, %	E00	-	-	0.50	-	-	4.4	C4	207	4.4	00	000
Mov Cap-1 Maneuver	588	-	-	858	-	-	44	61	397	44	60	228
Mov Cap-2 Maneuver	-	-	-	-	-	-	44	61	-	44	60	-
Stage 1	-	-	-	-	-	-	405	420	-	224	249	-
Stage 2	-	-	-	-	-	-	204	249	-	382	416	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			53.5			44.2		
HCM LOS							F			E		
							•			_		
NA:		IDL 4	ED:	EDT	ED D	14/51	MOT	MES	ODL 4			
Minor Lane/Major Mvmt	: <u> </u>	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR:				
Capacity (veh/h)		101	588	-	-	858	-	-				
HCM Lane V/C Ratio		0.272	-	-	-	0.01	-	-	0.151			
HCM Control Delay (s)		53.5	0	-	-	9.2	0	-				
HCM Lane LOS		F	Α	-	-	Α	Α	-	Е			
HCM 95th %tile Q(veh)		1	0	-	-	0	-	-	0.5			

Intersection												
Int Delay, s/veh	4.7											
				14/5	14/5-	14/55			NES	0-1	0	055
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Vol, veh/h	3	593	7	24	1136	3	9	0	22	3	0	16
Future Vol, veh/h	3	593	7	24	1136	3	9	0	22	3	0	16
Conflicting Peds, #/hr	0	0	0	304	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage,	# -	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	97	97	97	75	75	75	75	75	75
Heavy Vehicles, %	0	2	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	4	706	8	25	1171	3	12	0	29	4	0	21
Major/Minor M	lajor1		_	Major2		N	Minor1		N	Minor2		
	1174	0	0	1018	0	0	2255	2246	1014	1956	2249	1173
Stage 1	-	U	U	1010	-	U	1022	1022	1014	1223	1223	-
Stage 2	_	_	_	-	-	_	1233	1224	<u>-</u>	733	1026	_
Critical Hdwy	4.1	<u>-</u>	<u>-</u>	4.1		<u>-</u>	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	4.1	_	_	4.1	_	-	6.1	5.5	0.2	6.1	5.5	0.2
Critical Hdwy Stg 2		<u>-</u>	<u>-</u>	-	<u>-</u>	<u>-</u>	6.1	5.5	-	6.1	5.5	
Follow-up Hdwy	2.2		_	2.2	-	-	3.5	5.5 4	3.3	3.5	5.5	3.3
Pot Cap-1 Maneuver	602	-	<u>-</u>	689	<u>-</u>	<u>-</u>	30	42	292	49	42	236
Stage 1	- 002	_	_	009	_	-	287	316	292	221	254	230
Stage 1	-	-	-	-	-	-	219	254	-	415	315	-
Platoon blocked, %	-		-	-	_	-	219	204	-	413	313	-
Mov Cap-1 Maneuver	602	-	-	514		-	18	27	218	38	27	236
Mov Cap-1 Maneuver	- 002		-	514	_	-	18	27	210	38	27	230
Stage 1	-	-	-	-	-	<u>-</u>	212	234	-	219	218	-
Stage 2	_	_	_	_	_	_	171	218	<u>-</u>	355	233	-
Glaye Z	-	_	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	17.1	210	-	555	200	<u>-</u>
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.3			192.1			39.6		
HCM LOS							F			Е		
Minor Lane/Major Mvmt	1	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)		52	602	_		514	_	-	129			
HCM Lane V/C Ratio			0.006	_		0.048	_		0.196			
HCM Control Delay (s)		192.1	11	0	_	12.4	0	_				
HCM Lane LOS		F	В	A	_	12. 4	A	_	55.0 E			
HCM 95th %tile Q(veh)		3.3	0	-		0.2	-	_	0.7			
HOW JOHN JOHN Q(VEII)		0.0	U			0.2			0.1			



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Lane Group	EBL	EBR	SET	SER	NWL	NWT	Ø9	
Lane Configurations	ኻ	7	^	7	ኻ	^	20	
Traffic Volume (vph)	430	277	658	189	348	739		
Future Volume (vph)	430	277	658	189	348	739		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	1900	1900	1300	1900	11	1300		
Storage Length (ft)	0	100	11	55	150	12		
Storage Lanes	1	100		1	130			
Taper Length (ft)	25	ı		ı	25			
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	1.00		
Frt	1.00	0.850	0.95	0.850	1.00	1.00		
Fit Protected	0.950	0.000		0.000	0.950			
Satd. Flow (prot)	2046	1830	3421	1507	1745	1863		
Flt Permitted	0.950	1030	3421	1307	0.220	1003		
	2046	1830	3421	1507	404	1863		
Satd. Flow (perm)	2040	Yes	3421	Yes	404	1003		
Right Turn on Red		140		res 85				
Satd. Flow (RTOR)	30	140	30	00		30		
Link Speed (mph)			640			645		
Link Distance (ft)	1126							
Travel Time (s) Peak Hour Factor	25.6	0.88	14.5 0.92	0.92	0.92	14.7 0.92		
	0.88							
Heavy Vehicles (%)	0%	0%	2%	0%	0%	2%		
Adj. Flow (vph)	489	315	715	205	378	803		
Shared Lane Traffic (%)	400	045	745	005	070	000		
Lane Group Flow (vph)	489	315	715	205	378	803		
Enter Blocked Intersection	No	No	No	No	No	No		
Lane Alignment	Left	Right	Left	Right	Left	Left		
Median Width(ft)	16		11			11		
Link Offset(ft)	0		0			0		
Crosswalk Width(ft)	16		16			16		
Two way Left Turn Lane								
Headway Factor	0.85	0.85	1.04	1.09	1.04	1.00		
Turning Speed (mph)	15	9		9	15			
Number of Detectors	1	1	2	1	1	2		
Detector Template	Left	Right	Thru	Right	Left	Thru		
Leading Detector (ft)	20	20	100	20	20	100		
Trailing Detector (ft)	0	0	0	0	0	0		
Detector 1 Position(ft)	0	0	0	0	0	0		
Detector 1 Size(ft)	20	20	6	20	20	6		
Detector 1 Type	CI+Ex	Cl+Ex	CI+Ex	CI+Ex	Cl+Ex	CI+Ex		
Detector 1 Channel								
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 2 Position(ft)			94			94		
Detector 2 Size(ft)			6			6		
Detector 2 Type			CI+Ex			CI+Ex		
Detector 2 Channel								
Detector 2 Extend (s)			0.0			0.0		
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA		

	*	-	×	4	*	*		
Lane Group	EBL	EBR	SET	SER	NWL	NWT	Ø9	
Protected Phases	4		6		5	2	9	
Permitted Phases		4		6	2			
Detector Phase	4	4	6	6	5	2		
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	23.0	23.0	23.0	23.0	10.0	23.0	19.0	
Total Split (s)	29.0	29.0	38.0	38.0	15.0	53.0	23.0	
Total Split (%)	27.6%	27.6%	36.2%	36.2%	14.3%	50.5%	22%	
Maximum Green (s)	22.0	22.0	31.0	31.0	9.0	46.0	20.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	4.0	2.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	7.0	7.0	7.0	7.0	6.0	7.0		
Lead/Lag			Lag	Lag	Lead			
Lead-Lag Optimize?			Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	Max	Max	None	Max	None	
Walk Time (s)							5.0	
Flash Dont Walk (s)							11.0	
Pedestrian Calls (#/hr)							35	
Act Effct Green (s)	22.2	22.2	31.3	31.3	47.5	46.5		
Actuated g/C Ratio	0.24	0.24	0.34	0.34	0.51	0.50		
v/c Ratio	1.01	0.58	0.62	0.37	1.13	0.87		
Control Delay	80.9	23.3	30.4	17.2	110.9	34.8		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	80.9	23.3	30.4	17.2	110.9	34.8		
LOS	F	С	С	В	F	С		
Approach Delay	58.3		27.5			59.2		
Approach LOS	Е		С			Е		
Intersection Summary								
Area Type:	Other							
Cycle Length: 105								
Actuated Cycle Length: 93	3.4							
Natural Cycle: 100	-							
Control Type: Actuated-U	ncoordinated	t						
Maximum v/c Ratio: 1.13								
Intersection Signal Delay:	48.9			li li	ntersectio	n LOS: D		
Intersection Capacity Utili)				of Service	D D	
Analysis Period (min) 15								
Splits and Phases: 2: N	Massachuset	ts Aevnue	e/Massacl	nusetts A	venue & I	ake Stree	et	
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→ Ø5	os.				Z9 S			23 s
из -	D0							

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Lane Group	EBL	EBR	SET	SER	NWL	NWT
Lane Group Flow (vph)	489	315	715	205	378	803
v/c Ratio	1.01	0.58	0.62	0.37	1.13	0.87
Control Delay	80.9	23.3	30.4	17.2	110.9	34.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.9	23.3	30.4	17.2	110.9	34.8
Queue Length 50th (ft)	~359	100	211	58	~217	480
Queue Length 95th (ft)	#537	185	277	122	#422	#740
Internal Link Dist (ft)	1046		560			565
Turn Bay Length (ft)		100		55	150	
Base Capacity (vph)	486	542	1147	561	335	927
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.58	0.62	0.37	1.13	0.87

Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

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Lane Group	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations	<u></u>	7	ኘ	^	IIDO	Ä	7
Traffic Volume (vph)	545	181	171	302	14	531	632
Future Volume (vph)	545	181	171	302	14	531	632
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	10	11	12	16	14
Storage Length (ft)	10	150	110	11	12	0	0
Storage Lanes		130	110			1	1
Taper Length (ft)		ı.	25			25	ı
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00	1.00
	1.00		1.00	0.95	1.00	1.00	
Frt		0.850	0.050			0.050	0.850
Flt Protected	0450	4004	0.950	2400	0	0.950	4700
Satd. Flow (prot)	2153	1664	1652	3490	0	2046	1723
Flt Permitted	0.150	4004	0.950	0.400	•	0.950	4=00
Satd. Flow (perm)	2153	1664	1652	3490	0	2046	1723
Right Turn on Red		Yes					Yes
Satd. Flow (RTOR)		70					441
Link Speed (mph)	30			30		30	
Link Distance (ft)	373			505		387	
Travel Time (s)	8.5			11.5		8.8	
Peak Hour Factor	0.94	0.94	0.87	0.87	0.96	0.96	0.96
Heavy Vehicles (%)	0%	10%	2%	0%	0%	0%	0%
Adj. Flow (vph)	580	193	197	347	15	553	658
Shared Lane Traffic (%)							
Lane Group Flow (vph)	580	193	197	347	0	568	658
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	R NA	Left	Right
Median Width(ft)	12	J -		12		16	J
Link Offset(ft)	0			0		0	
Crosswalk Width(ft)	16			16		16	
Two way Left Turn Lane							
Headway Factor	0.85	0.85	1.09	1.04	1.00	0.85	0.92
Turning Speed (mph)	3.00	9	15	1.07	9	15	9
Number of Detectors	2	1	1	2	1	13	1
Detector Template	Thru	Right	Left	Thru	Left	Left	Right
Leading Detector (ft)	100	20	20	100	20	20	Rigiit 20
Trailing Detector (ft)	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94			
Detector 2 Size(ft)	6			6			
Detector 2 Type	CI+Ex			CI+Ex			
Detector 2 Channel							
Detector 2 Extend (s)	0.0			0.0			
Turn Type	NA	Free	Prot	NA	Perm	Prot	Perm

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Lane Group	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Protected Phases	4		3	8		2	
Permitted Phases		Free			2		2
Detector Phase	4		3	8	2	2	2
Switch Phase							
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0		9.0	21.0	21.0	21.0	21.0
Total Split (s)	74.0		25.0	99.0	21.0	21.0	21.0
Total Split (%)	61.7%		20.8%	82.5%	17.5%	17.5%	17.5%
Maximum Green (s)	69.0		20.0	94.0	16.0	16.0	16.0
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0		5.0	5.0		5.0	5.0
Lead/Lag	Lag		Lead				
Lead-Lag Optimize?	Yes		Yes				
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0
Recall Mode	None		None	None	Max	Max	Max
Walk Time (s)	5.0			5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0			11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0	0
Act Effct Green (s)	25.7	71.5	14.1	44.9		16.4	16.4
Actuated g/C Ratio	0.36	1.00	0.20	0.63		0.23	0.23
v/c Ratio	0.75	0.12	0.61	0.16		1.21	0.90
Control Delay	26.9	0.1	36.1	5.3		144.0	27.9
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	26.9	0.1	36.1	5.3		144.0	27.9
LOS	С	Α	D	Α		F	С
Approach Delay	20.3			16.4		81.7	
Approach LOS	С			В		F	
Intersection Summary							
Area Type:	Other						

Area Type: Othe

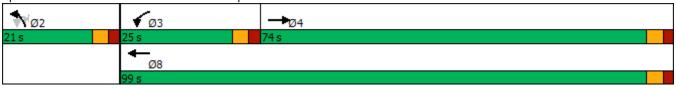
Cycle Length: 120 Actuated Cycle Length: 71.5 Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.21
Intersection Signal Delay: 49.1
Intersection Capacity Utilization 80.9%
Analysis Period (min) 15

Intersection LOS: D
ICU Level of Service D

Splits and Phases: 5: Route 2 EB On/Off Ramps & Lake Street



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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	580	193	197	347	568	658
v/c Ratio	0.75	0.12	0.61	0.16	1.21	0.90
Control Delay	26.9	0.1	36.1	5.3	144.0	27.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.9	0.1	36.1	5.3	144.0	27.9
Queue Length 50th (ft)	215	0	79	28	~315	90
Queue Length 95th (ft)	361	0	156	40	#634	#361
Internal Link Dist (ft)	293			425	307	
Turn Bay Length (ft)		150	110			
Base Capacity (vph)	2001	1664	472	3490	468	734
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.12	0.42	0.10	1.21	0.90

Intersection Summary

Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations	7	†			†	7				ሻ	ર્ન	7
Traffic Volume (vph)	368	809	0	0	265	346	0	0	0	208	22	25
Future Volume (vph)	368	809	0	0	265	346	0	0	0	208	22	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	11	10	12	12	12	11	12	16
Storage Length (ft)	250		0	0		75	0		0	100		0
Storage Lanes	1		0	0		1	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt						0.850						0.850
Flt Protected	0.950									0.950	0.961	
Satd. Flow (prot)	1805	1881	0	0	1801	1463	0	0	0	1641	1705	1830
Flt Permitted	0.950									0.950	0.961	
Satd. Flow (perm)	1805	1881	0	0	1801	1463	0	0	0	1641	1705	1830
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						380						136
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		505			380			459			529	
Travel Time (s)		11.5			8.6			10.4			12.0	
Peak Hour Factor	0.88	0.88	0.88	0.91	0.91	0.91	0.92	0.92	0.92	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	0%	0%	2%	3%	0%	0%	0%	1%	5%	0%
Adj. Flow (vph)	418	919	0	0	291	380	0	0	0	219	23	26
Shared Lane Traffic (%)										45%		
Lane Group Flow (vph)	418	919	0	0	291	380	0	0	0	120	122	26
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.04	1.09	1.00	1.00	1.00	1.04	1.00	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2	1				1	2	1
Detector Template	Left	Thru			Thru	Right				Left	Thru	Right
Leading Detector (ft)	20	100			100	20				20	100	20
Trailing Detector (ft)	0	0			0	0				0	0	0
Detector 1 Position(ft)	0	0			0	0				0	0	0
Detector 1 Size(ft)	20	6			6	20				20	6	20
Detector 1 Type	CI+Ex	Cl+Ex			Cl+Ex	CI+Ex				CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0	0.0				0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0			0.0	0.0				0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0			0.0	0.0				0.0	0.0	0.0
Detector 2 Position(ft)		94			94						94	
Detector 2 Size(ft)		6			6						6	
Detector 2 Type		CI+Ex			Cl+Ex						CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type	Prot	NA			NA	Perm				Split	NA	Perm

Ramp & Lake Street	01/14/2

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Protected Phases	7	4			8					2	2	
Permitted Phases						8						2
Detector Phase	7	4			8	8				2	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0			4.0	4.0				4.0	4.0	4.0
Minimum Split (s)	8.5	22.0			22.0	22.0				22.0	22.0	22.0
Total Split (s)	16.0	38.0			22.0	22.0				22.0	22.0	22.0
Total Split (%)	26.7%	63.3%			36.7%	36.7%				36.7%	36.7%	36.7%
Maximum Green (s)	11.5	32.0			16.0	16.0				16.0	16.0	16.0
Yellow Time (s)	4.0	4.0			4.0	4.0				4.0	4.0	4.0
All-Red Time (s)	0.5	2.0			2.0	2.0				2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0				0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0			6.0	6.0				6.0	6.0	6.0
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Vehicle Extension (s)	3.0	3.0			3.0	3.0				3.0	3.0	3.0
Recall Mode	None	None			None	None				Max	Max	Max
Walk Time (s)		5.0			5.0	5.0				5.0	5.0	5.0
Flash Dont Walk (s)		11.0			11.0	11.0				11.0	11.0	11.0
Pedestrian Calls (#/hr)		0			0	0				0	0	0
Act Effct Green (s)	11.5	30.6			14.6	14.6				16.0	16.0	16.0
Actuated g/C Ratio	0.20	0.52			0.25	0.25				0.27	0.27	0.27
v/c Ratio	1.18	0.94			0.65	0.59				0.27	0.26	0.04
Control Delay	134.8	32.4			27.2	6.6				19.4	19.3	0.1
Queue Delay	0.0	0.0			0.0	0.0				0.0	0.0	0.0
Total Delay	134.8	32.4			27.2	6.6				19.4	19.3	0.1
LOS	F	С			С	Α				В	В	Α
Approach Delay		64.4			15.5						17.5	
Approach LOS		Е			В						В	

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 58.7

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.18

Intersection Signal Delay: 44.5 Intersection LOS: D
Intersection Capacity Utilization 61.9% ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 7: Route 2 WB Off Ramp & Lake Street



	≯	→	←	*_	*	×	4	
Lane Group	EBL	EBT	WBT	WBR	NWL	NWT	NWR	
Lane Group Flow (vph)	418	919	291	380	120	122	26	
v/c Ratio	1.18	0.94	0.65	0.59	0.27	0.26	0.04	
Control Delay	134.8	32.4	27.2	6.6	19.4	19.3	0.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	134.8	32.4	27.2	6.6	19.4	19.3	0.1	
Queue Length 50th (ft)	~191	275	92	0	35	36	0	
Queue Length 95th (ft)	#331	#503	162	56	75	76	0	
Internal Link Dist (ft)		425	300			449		
Turn Bay Length (ft)	250			75	100			
Base Capacity (vph)	353	1027	492	675	448	465	598	
Starvation Cap Reductn	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	
Reduced v/c Ratio	1.18	0.89	0.59	0.56	0.27	0.26	0.04	

Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

	_#	→	•	€.	6	1			
Lane Group	EBL	EBT	WBT	WBR	SWL	SWR	Ø3	Ø4	
Lane Configurations			^ ^			77			_
Traffic Volume (vph)	0	0	2209	0	0	1131			
Future Volume (vph)	0	0	2209	0	0	1131			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Lane Width (ft)	13	13	13	13	13	13			
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.88			
Frt			0.0			0.850			
Flt Protected						0.000			
Satd. Flow (prot)	0	0	4776	0	0	2617			
Flt Permitted									
Satd. Flow (perm)	0	0	4776	0	0	2617			
Right Turn on Red				Yes		Yes			
Satd. Flow (RTOR)						1			
Link Speed (mph)		30	30		30				
Link Distance (ft)		201	192		296				
Travel Time (s)		4.6	4.4		6.7				
Peak Hour Factor	0.92	0.92	0.97	0.97	0.98	0.98			
Heavy Vehicles (%)	2%	2%	1%	0%	0%	1%			
Adj. Flow (vph)	0	0	2277	0	0	1154			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	0	0	2277	0	0	1154			
Enter Blocked Intersection	No	No	No	No	No	No			
Lane Alignment	Left	Left	Left	Right	Left	Right			
Median Width(ft)		0	0	, i	0	Ţ.			
Link Offset(ft)		0	0		0				
Crosswalk Width(ft)		16	16		16				
Two way Left Turn Lane									
Headway Factor	1.10	1.10	1.10	1.10	1.10	1.10			
Turning Speed (mph)	15			9	15	30			
Number of Detectors			2			1			
Detector Template			Thru			Right			
Leading Detector (ft)			100			20			
Trailing Detector (ft)			0			0			
Detector 1 Position(ft)			0			0			
Detector 1 Size(ft)			6			20			
Detector 1 Type			CI+Ex			CI+Ex			
Detector 1 Channel									
Detector 1 Extend (s)			0.0			0.0			
Detector 1 Queue (s)			0.0			0.0			
Detector 1 Delay (s)			0.0			0.0			
Detector 2 Position(ft)			94						
Detector 2 Size(ft)			6						
Detector 2 Type			CI+Ex						
Detector 2 Channel									
Detector 2 Extend (s)			0.0						
Turn Type			NA			custom			
Protected Phases			2			3 4	3	4	
Permitted Phases									
Detector Phase			2			3 4			

	≭	→	•	۲	6	~					
Lane Group	EBL	EBT	WBT	WBR	SWL	SWR	Ø3	Ø4			
Switch Phase					<u> </u>	• • • • • • • • • • • • • • • • • • • •		~ .			
Minimum Initial (s)			10.0				10.0	10.0			
Minimum Split (s)			15.0				19.0	15.0			
Total Split (s)			58.0				36.0	26.0			
Total Split (%)			48.3%				30%	22%			
Maximum Green (s)			53.0				30.0	21.0			
Yellow Time (s)			4.0				4.0	3.5			
All-Red Time (s)			1.0				2.0	1.5			
Lost Time Adjust (s)			0.0								
Total Lost Time (s)			5.0								
Lead/Lag			0.0				Lead	Lag			
Lead-Lag Optimize?								9			
Vehicle Extension (s)			3.0				3.0	3.0			
Recall Mode			C-Max				Max	Max			
Walk Time (s)							5.0				
Flash Dont Walk (s)							8.0				
Pedestrian Calls (#/hr)							0				
Act Effct Green (s)			53.0			56.0	-				
Actuated g/C Ratio			0.44			0.47					
v/c Ratio			1.08			0.95					
Control Delay			46.7			46.7					
Queue Delay			1.5			0.0					
Total Delay			48.2			46.7					
LOS			D			D					
Approach Delay			48.2		46.7						
Approach LOS			D		D						
Intersection Summary											
Area Type: CE	3D										
Cycle Length: 120											
Actuated Cycle Length: 120											
Offset: 16 (13%), Referenced	to phase	2:WBT,	Start of G	reen							
Natural Cycle: 140											
Control Type: Actuated-Coord	inated										
Maximum v/c Ratio: 1.19											
Intersection Signal Delay: 47.7	7				Intersectio	n LOS: D					
Intersection Capacity Utilizatio	n 100.6%	, 0			ICU Level	of Service	G				
Analysis Period (min) 15											
Splits and Phases: 11: Rout	te 2/Alew	ife Brook	Parkway	& Rout	e 16						
#11 #12 #13 #14	C ZITIOW	51001	antway	₩ 1 NOUL	_	12 #13 #	14		#11 #12	#13 #14	\neg
← ★ ★ Ø2 (R)					*	†	L Ø3		* _#	4 × Ø4	1

36 s

58 s



Lane Group	WBT	SWR
Lane Group Flow (vph)	2277	1154
v/c Ratio	1.08	0.95
Control Delay	46.7	46.7
Queue Delay	1.5	0.0
Total Delay	48.2	46.7
Queue Length 50th (ft)	~702	472
Queue Length 95th (ft)	m#57	#644
Internal Link Dist (ft)	112	
Turn Bay Length (ft)		
Base Capacity (vph)	2109	1221
Starvation Cap Reductn	7	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	1.08	0.95

Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

	⊿	*_	ļ	*
Lane Group	EBL	WBR	SBT	NWT
Lane Configurations	ሻሻ	1	^	^
Traffic Volume (vph)	610	591	250	1618
Future Volume (vph)	610	591	250	1618
Ideal Flow (vphpl)	1900	1900	1900	1900
Lane Width (ft)	1300	16	1300	1300
Lane Util. Factor	0.97	1.00	0.95	0.95
Frt	0.91	0.865	0.95	0.95
	0.050	0.000		
Flt Protected	0.950	1000	2004	2204
Satd. Flow (prot)	3257	1660	3291	3324
Flt Permitted	0.950	1000	0001	000
Satd. Flow (perm)	3257	1660	3291	3324
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)			30	30
Link Distance (ft)			202	278
Travel Time (s)			4.6	6.3
Peak Hour Factor	0.90	0.95	0.98	0.97
Heavy Vehicles (%)	0%	1%	2%	1%
Adj. Flow (vph)	678	622	255	1668
Shared Lane Traffic (%)	0.0	7	_00	. 500
Lane Group Flow (vph)	678	622	255	1668
Enter Blocked Intersection	No	No	No	No
	Left	R NA	Left	L NA
Lane Alignment	Leit	KINA		
Median Width(ft)			0	0
Link Offset(ft)			0	0
Crosswalk Width(ft)			16	16
Two way Left Turn Lane	,			
Headway Factor	1.10	0.97	1.10	1.10
Turning Speed (mph)	15	30		
Number of Detectors	1	1	2	2
Detector Template	Left	Right	Thru	Thru
Leading Detector (ft)	20	20	100	100
Trailing Detector (ft)	0	0	0	0
Detector 1 Position(ft)	0	0	0	0
Detector 1 Size(ft)	20	20	6	6
Detector 1 Type	CI+Ex	Cl+Ex	CI+Ex	CI+Ex
Detector 1 Channel	OITEX	OITEX	OITEX	OITEX
Detector 1 Extend (s)	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94	94
Detector 2 Size(ft)			6	6
Detector 2 Type			CI+Ex	Cl+Ex
Detector 2 Channel				
Detector 2 Extend (s)			0.0	0.0
Turn Type	Prot	Prot	NA	NA
Protected Phases	4	2!	3	2!
	4	2	3	2
Permitted Phases Detector Phase	4	2	3	2

	#	*	ļ	*
Lane Group	EBL	WBR	SBT	NWT
Switch Phase				
Minimum Initial (s)	10.0	10.0	10.0	10.0
Minimum Split (s)	15.0	15.0	19.0	15.0
Total Split (s)	26.0	58.0	36.0	58.0
Total Split (%)	21.7%	48.3%	30.0%	48.3%
Maximum Green (s)	21.0	53.0	30.0	53.0
Yellow Time (s)	3.5	4.0	4.0	4.0
All-Red Time (s)	1.5	1.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	5.0
Lead/Lag	Lag		Lead	
Lead-Lag Optimize?				
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	Max	C-Max	Max	C-Max
Walk Time (s)			5.0	
Flash Dont Walk (s)			8.0	
Pedestrian Calls (#/hr)			0	
Act Effct Green (s)	21.0	53.0	30.0	53.0
Actuated g/C Ratio	0.18	0.44	0.25	0.44
v/c Ratio	1.19	0.85	0.31	1.14
Control Delay	145.7	29.8	37.8	102.5
Queue Delay	0.0	3.3	0.0	0.3
Total Delay	145.7	33.1	37.8	102.8
LOS	F	С	D	F
Approach Delay			37.8	102.8
Approach LOS			D	F
Intersection Summary				
Area Type:	CBD			
Cycle Length: 120				
Actuated Cycle Length: 12	20			

Actuated Cycle Length: 120

Offset: 16 (13%), Referenced to phase 2:WBT, Start of Green

Natural Cycle: 140

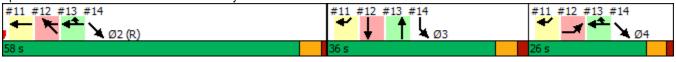
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.19

Intersection Signal Delay: 93.2 Intersection LOS: F Intersection Capacity Utilization 134.7% ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 12: Alewife Brook Parkway & Route 2



[!] Phase conflict between lane groups.

	#	*	ļ	*
Lane Group	EBL	WBR	SBT	NWT
Lane Group Flow (vph)	678	622	255	1668
v/c Ratio	1.19	0.85	0.31	1.14
Control Delay	145.7	29.8	37.8	102.5
Queue Delay	0.0	3.3	0.0	0.3
Total Delay	145.7	33.1	37.8	102.8
Queue Length 50th (ft)	~326	422	84	~792
Queue Length 95th (ft)	#446	#639	123	#931
Internal Link Dist (ft)			122	198
Turn Bay Length (ft)				
Base Capacity (vph)	569	733	822	1468
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	53	0	107
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.19	0.91	0.31	1.23

Intersection Summary

Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

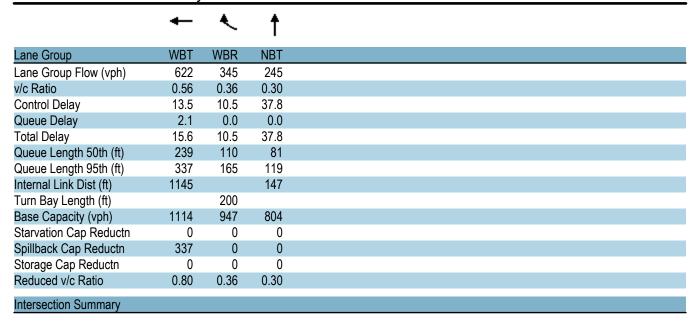
Queue shown is maximum after two cycles.

Earl Cong		۶	→	•	•	←	•	•	†	~	>	ţ	4
Traffic Volume (vph)	Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	Lane Configurations					*	7		44				
Future Volume (vph)		0	0	0	0		328	0		0	0	0	0
Idea Flow (yphp) 1900		0	0	0	0	591	328	0	238	0	0	0	
Storage Length (ft)	Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Lanes		0		0	0		200	0		0	0		
Taper Length (ft)		0		0	0		1	0		0	0		0
Lane UNII. Factor		25			25			25			25		
Fit Protected Fit Protected		1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Fit Protected Satd. Flow (prot) 0 0 0 0 1693 1439 0 3217 0 0 0 0 0 0 0 0 0	Ped Bike Factor												
Satd. Flow (prot) 0	Frt						0.850						
Fit Permitted Satd. Flow (perm) 0 0 0 0 1693 1439 0 3217 0 0 0 0 0 0 0 0 0	Flt Protected												
Satd. Flow (perm) 0 0 0 0 1693 1439 0 3217 0 0 0 0 0 0 0 0 0	Satd. Flow (prot)	0	0	0	0	1693	1439	0	3217	0	0	0	0
Right Turn on Red No	Flt Permitted												
Satid Flow (RTOR) Link Speed (mph) 30 30 30 30 30 30 30 3	Satd. Flow (perm)	0	0	0	0	1693	1439	0	3217	0	0	0	0
Link Speed (mph)	Right Turn on Red			No			No	No		No			No
Link Distance (ft)	Satd. Flow (RTOR)												
Travel Time (s) 3.7 27.8 5.2 4.2	Link Speed (mph)		30			30			30			30	
Confil Peds. (#/hr)	Link Distance (ft)		161			1225			227			185	
Peak Hour Factor	Travel Time (s)		3.7			27.8			5.2			4.2	
Heavy Vehicles (%)	Confl. Peds. (#/hr)						2						
Adj. Flow (vph) 0 0 0 622 345 0 245 0 0 0 0 Shared Lane Traffic (%) Shared Lane Crow Flow (ph) 0	Peak Hour Factor	0.92	0.92	0.92	0.95	0.95	0.95	0.97	0.97	0.97	0.92	0.92	0.92
Shared Lane Traffic (%) Lane Group Flow (vph) 0 0 0 0 0 622 345 0 245 0 0 0 0 0 0	Heavy Vehicles (%)	2%	2%	2%	0%	1%	1%	0%	1%	0%	2%	2%	2%
Lane Group Flow (vph)	• ,	0	0	0	0	622	345	0	245	0	0	0	0
Enter Blocked Intersection	Shared Lane Traffic (%)												
Left Left Right Right Median Width(ft) 0	Lane Group Flow (vph)	0	0	0	0	622	345	0	245	0	0	0	0
Median Width(fft) 0 0 0 0 Link Offset(ft) 0 0 0 0 Crosswalk Width(ft) 16 16 16 16 Two way Left Turn Lane 1.14<	Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Median Width(fft) 0 0 0 0 Link Offset(ft) 0 0 0 0 Crosswalk Width(ft) 16 16 16 16 Two way Left Turn Lane 1.14<	Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Crosswalk Width(ft) 16 16 16 16 Two way Left Turn Lane Headway Factor 1.14	Median Width(ft)		0			0			0			0	
Two way Left Turn Lane Headway Factor 1.14 1.14 1.14 1.14 1.14 1.14 1.14 1.1	Link Offset(ft)		0			0			0			0	
Headway Factor	Crosswalk Width(ft)		16			16			16			16	
Turning Speed (mph) 15 9 15 9 15 9 15 9 Number of Detectors 2 1 2 1 2 1 2 Detector 1 Detector 1 Truning Detector (ft) 100 20 100	Two way Left Turn Lane												
Number of Detectors 2 1 2 Detector Template Thru Right Thru Leading Detector (ft) 100 20 100 Trailing Detector (ft) 0 0 0 Detector 1 Position(ft) 0 0 0 Detector 1 Size(ft) 6 20 6 Detector 1 Type CI+Ex CI+Ex CI+Ex Detector 1 Channel 0.0 0.0 0.0 Detector 1 Extend (s) 0.0 0.0 0.0 Detector 1 Queue (s) 0.0 0.0 0.0 Detector 1 Delay (s) 0.0 0.0 0.0 Detector 2 Position(ft) 94 94 Detector 2 Size(ft) 6 6 Detector 2 Type CI+Ex CI+Ex Detector 2 Channel CI+Ex CI+Ex	Headway Factor	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
Detector Template Thru Right Thru Leading Detector (ft) 100 20 100 Trailing Detector (ft) 0 0 0 Detector 1 Position(ft) 0 0 0 Detector 1 Size(ft) 6 20 6 Detector 1 Type CI+Ex CI+Ex CI+Ex Detector 1 Channel 0.0 0.0 0.0 Detector 1 Queue (s) 0.0 0.0 0.0 Detector 1 Delay (s) 0.0 0.0 0.0 Detector 2 Position(ft) 94 94 Detector 2 Size(ft) 6 6 Detector 2 Type CI+Ex CI+Ex Detector 2 Channel	Turning Speed (mph)	15		9	15		9	15		9	15		9
Leading Detector (ft) 100 20 100 Trailing Detector (ft) 0 0 0 Detector 1 Position(ft) 0 0 0 Detector 1 Size(ft) 6 20 6 Detector 1 Type CI+Ex CI+Ex CI+Ex Detector 1 Channel 0.0 0.0 0.0 Detector 1 Extend (s) 0.0 0.0 0.0 Detector 1 Queue (s) 0.0 0.0 0.0 Detector 1 Delay (s) 0.0 0.0 0.0 Detector 2 Position(ft) 94 94 Detector 2 Size(ft) 6 6 Detector 2 Type CI+Ex CI+Ex Detector 2 Channel	Number of Detectors					2	1		2				
Trailing Detector (ft) 0 0 0 Detector 1 Position(ft) 0 0 0 Detector 1 Size(ft) 6 20 6 Detector 1 Type CI+Ex CI+Ex CI+Ex Detector 1 Channel 0.0 0.0 0.0 Detector 1 Extend (s) 0.0 0.0 0.0 Detector 1 Queue (s) 0.0 0.0 0.0 Detector 1 Delay (s) 0.0 0.0 0.0 Detector 2 Position(ft) 94 94 Detector 2 Size(ft) 6 6 Detector 2 Type CI+Ex CI+Ex Detector 2 Channel CI+Ex CI+Ex	Detector Template					Thru	Right		Thru				
Detector 1 Position(ft) 0 0 0 Detector 1 Size(ft) 6 20 6 Detector 1 Type CI+Ex CI+Ex CI+Ex Detector 1 Channel Detector 1 Extend (s) 0.0 0.0 0.0 Detector 1 Queue (s) 0.0 0.0 0.0 Detector 1 Delay (s) 0.0 0.0 0.0 Detector 2 Position(ft) 94 94 Detector 2 Size(ft) 6 6 Detector 2 Type CI+Ex CI+Ex Detector 2 Channel CI+Ex CI+Ex	Leading Detector (ft)					100	20		100				
Detector 1 Size(ft) 6 20 6 Detector 1 Type CI+Ex CI+Ex Detector 1 Channel 0.0 0.0 Detector 1 Extend (s) 0.0 0.0 Detector 1 Queue (s) 0.0 0.0 Detector 1 Delay (s) 0.0 0.0 Detector 2 Position(ft) 94 94 Detector 2 Size(ft) 6 6 Detector 2 Type CI+Ex CI+Ex Detector 2 Channel CI+Ex CI+Ex	Trailing Detector (ft)					0	0		0				
Detector 1 Type CI+Ex CI+Ex CI+Ex Detector 1 Channel 0.0 0.0 0.0 Detector 1 Extend (s) 0.0 0.0 0.0 Detector 1 Queue (s) 0.0 0.0 0.0 Detector 1 Delay (s) 0.0 0.0 0.0 Detector 2 Position(ft) 94 94 Detector 2 Size(ft) 6 6 Detector 2 Type CI+Ex CI+Ex Detector 2 Channel CI+Ex CI+Ex	Detector 1 Position(ft)					0	0		0				
Detector 1 Channel Detector 1 Extend (s) 0.0 0.0 0.0 Detector 1 Queue (s) 0.0 0.0 0.0 Detector 1 Delay (s) 0.0 0.0 0.0 Detector 2 Position(ft) 94 94 Detector 2 Size(ft) 6 6 Detector 2 Type CI+Ex CI+Ex Detector 2 Channel CI+Ex CI+Ex	Detector 1 Size(ft)					6	20		6				
Detector 1 Extend (s) 0.0 0.0 0.0 Detector 1 Queue (s) 0.0 0.0 0.0 Detector 1 Delay (s) 0.0 0.0 0.0 Detector 2 Position(ft) 94 94 Detector 2 Size(ft) 6 6 Detector 2 Type CI+Ex CI+Ex Detector 2 Channel CI+Ex CI+Ex	Detector 1 Type					CI+Ex	CI+Ex		CI+Ex				
Detector 1 Queue (s) 0.0 0.0 0.0 Detector 1 Delay (s) 0.0 0.0 0.0 Detector 2 Position(ft) 94 94 Detector 2 Size(ft) 6 6 Detector 2 Type CI+Ex CI+Ex Detector 2 Channel CI+Ex CI+Ex	Detector 1 Channel												
Detector 1 Delay (s) 0.0 0.0 0.0 Detector 2 Position(ft) 94 94 Detector 2 Size(ft) 6 6 Detector 2 Type CI+Ex CI+Ex Detector 2 Channel CI+Ex CI+Ex	Detector 1 Extend (s)					0.0	0.0		0.0				
Detector 2 Position(ft) 94 94 Detector 2 Size(ft) 6 6 Detector 2 Type CI+Ex CI+Ex Detector 2 Channel CI+Ex CI+Ex	Detector 1 Queue (s)					0.0	0.0		0.0				
Detector 2 Size(ft) 6 6 Detector 2 Type CI+Ex CI+Ex Detector 2 Channel	Detector 1 Delay (s)					0.0	0.0		0.0				
Detector 2 Type CI+Ex CI+Ex Detector 2 Channel	Detector 2 Position(ft)					94			94				
Detector 2 Channel	Detector 2 Size(ft)					6			6				
Detector 2 Channel	Detector 2 Type					CI+Ex			CI+Ex				
Detector 2 Extend (s) 0.0 0.0	Detector 2 Channel												
	Detector 2 Extend (s)					0.0			0.0				

Lane Group	Ø2	Ø4
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot) Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Number of Detectors		
Detector Template		
Leading Detector (ft)		
Trailing Detector (ft)		
Detector 1 Position(ft)		
Detector 1 Size(ft)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(ft)		
Detector 2 Size(ft)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type					NA	Prot		NA				
Protected Phases					24	2 4		3				
Permitted Phases												
Detector Phase					2 4	2 4		3				
Switch Phase												
Minimum Initial (s)								10.0				
Minimum Split (s)								19.0				
Total Split (s)								36.0				
Total Split (%)								30.0%				
Maximum Green (s)								30.0				
Yellow Time (s)								4.0				
All-Red Time (s)								2.0				
Lost Time Adjust (s)								0.0				
Total Lost Time (s)								6.0				
Lead/Lag								Lead				
Lead-Lag Optimize?												
Vehicle Extension (s)								3.0				
Recall Mode								Max				
Walk Time (s)								5.0				
Flash Dont Walk (s)								8.0				
Pedestrian Calls (#/hr)								0				
Act Effct Green (s)					79.0	79.0		30.0				
Actuated g/C Ratio					0.66	0.66		0.25				
v/c Ratio					0.56	0.36		0.30				
Control Delay					13.5	10.5		37.8				
Queue Delay					2.1	0.0		0.0				
Total Delay					15.6	10.5		37.8				
LOS					В	В		D				
Approach Delay					13.8			37.8				
Approach LOS					В			D				
Intersection Summary												
Area Type: CBD)											
Cycle Length: 120												
Actuated Cycle Length: 120												
Offset: 16 (13%), Referenced to	phase	2:WBT, 8	Start of G	reen								
Natural Cycle: 140												
Control Type: Actuated-Coordina	ated											
Maximum v/c Ratio: 1.19												
Intersection Signal Delay: 18.6					tersection							
Intersection Capacity Utilization	52.1%			IC	CU Level o	of Service	Α					
Analysis Period (min) 15												

Lane Group	Ø2	Ø4
Turn Type	~_	~ '
Protected Phases	2	4
Permitted Phases		•
Detector Phase		
Switch Phase		
Minimum Initial (s)	10.0	10.0
Minimum Split (s)	15.0	15.0
Total Split (s)	58.0	26.0
Total Split (%)	48%	22%
	53.0	21.0
Maximum Green (s)	4.0	3.5
Yellow Time (s)	1.0	1.5
All-Red Time (s)	1.0	1.5
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		Lag
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	3.0
Recall Mode	C-Max	Max
Walk Time (s)		
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Summary		



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Lane Group	SBL	SBR	SEL	SET	NWT	NWR	Ø2	Ø4		
Lane Configurations	ሻሻ			^						
Traffic Volume (vph)	250	0	0	987	0	0				
Future Volume (vph)	250	0	0	987	0	0				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900				
Lane Width (ft)	13	13	13	13	13	13				
Lane Util. Factor	0.97	1.00	1.00	0.95	1.00	1.00				
Frt										
Flt Protected	0.950									
Satd. Flow (prot)	3193	0	0	3324	0	0				
FIt Permitted	0.950									
Satd. Flow (perm)	3193	0	0	3324	0	0				
Right Turn on Red	Yes	Yes				Yes				
Satd. Flow (RTOR)	234									
Link Speed (mph)	30			30	30					
Link Distance (ft)	155			297	139					
Travel Time (s)	3.5			6.8	3.2					
Peak Hour Factor	0.98	0.98	0.90	0.90	0.92	0.92				
Heavy Vehicles (%)	2%	0%	0%	1%	2%	2%				
Adj. Flow (vph)	255	0	0	1097	0	0				
Shared Lane Traffic (%)										
Lane Group Flow (vph)	255	0	0	1097	0	0				
Enter Blocked Intersection	No	No	No	No	No	No				
Lane Alignment	Left	Right	Left	Left	Left	Right				
Median Width(ft)	26			0	0					
Link Offset(ft)	0			0	0					
Crosswalk Width(ft)	16			16	16					
Two way Left Turn Lane										
Headway Factor	1.10	1.10	1.10	1.10	1.10	1.10				
Turning Speed (mph)	30	9	15			9				
Number of Detectors	1			2						
Detector Template	Left			Thru						
Leading Detector (ft)	20			100						
Trailing Detector (ft)	0			0						
Detector 1 Position(ft)	0			0						
Detector 1 Size(ft)	20			6						
Detector 1 Type	CI+Ex			CI+Ex						
Detector 1 Channel										
Detector 1 Extend (s)	0.0			0.0						
Detector 1 Queue (s)	0.0			0.0						
Detector 1 Delay (s)	0.0			0.0						
Detector 2 Position(ft)				94						
Detector 2 Size(ft)				6						
Detector 2 Type				CI+Ex						
Detector 2 Channel										
Detector 2 Extend (s)				0.0						
Turn Type	Prot			NA						
Protected Phases	3			2 4			2	4		
Permitted Phases										
Detector Phase	3			2 4						

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Lane Group	SBL	SBR	SEL	SET	NWT	NWR	Ø2	Ø4	
Switch Phase									
Minimum Initial (s)	10.0						10.0	10.0	
Minimum Split (s)	19.0						15.0	15.0	
Total Split (s)	36.0						58.0	26.0	
Total Split (%)	30.0%						48%	22%	
Maximum Green (s)	30.0						53.0	21.0	
Yellow Time (s)	4.0						4.0	3.5	
All-Red Time (s)	2.0						1.0	1.5	
Lost Time Adjust (s)	0.0								
Total Lost Time (s)	6.0								
Lead/Lag	Lead							Lag	
Lead-Lag Optimize?									
Vehicle Extension (s)	3.0						3.0	3.0	
Recall Mode	Max						C-Max	Max	
Walk Time (s)	5.0								
Flash Dont Walk (s)	8.0								
Pedestrian Calls (#/hr)	0								
Act Effct Green (s)	30.0			79.0					
Actuated g/C Ratio	0.25			0.66					
v/c Ratio	0.26			0.50					
Control Delay	0.8			11.4					
Queue Delay	0.5			0.0					
Total Delay	1.3			11.4					
LOS	Α			В					
Approach Delay	1.3			11.4					
Approach LOS	Α			В					
Intersection Summary									
Area Type:	CBD								
Cycle Length: 120									
Actuated Cycle Length: 1	20								
Offset: 16 (13%), Referer	nced to phase	2:WBT, S	Start of G	reen					
Natural Cycle: 140									
Control Type: Actuated-C	Coordinated								
Maximum v/c Ratio: 1.19									
Intersection Signal Delay					tersection				
Intersection Capacity Util	ization 47.8%			IC	CU Level	of Service	e A		
Analysis Period (min) 15									
Splits and Phases: 14:	Alewife Brook	Parkway	& Route	2					
#11 #12 #13 #14	,	antiva	- 1.00tc	_	#11 #1	12 #13 #	14		#11 #12 #13 #14
← ★ ★ Ø2	(R)				*	, †	Ü Ø3		4 34 44 04
50.0	117				26.0		-123		26 a

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Lane Group	SBL	SET
Lane Group Flow (vph)	255	1097
v/c Ratio	0.26	0.50
Control Delay	0.8	11.4
Queue Delay	0.5	0.0
Total Delay	1.3	11.4
Queue Length 50th (ft)	0	209
Queue Length 95th (ft)	1	258
Internal Link Dist (ft)	75	217
Turn Bay Length (ft)		
Base Capacity (vph)	973	2188
Starvation Cap Reductn	391	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.44	0.50
Intersection Summary		
intersection Summary		

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		*			*							
Traffic Volume (vph)	0	852	0	0	653	0	0	0	0	0	0	0
Future Volume (vph)	0	852	0	0	653	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	15	16	16	16	12	12	12	12	12	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	2049	0	0	2153	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	2049	0	0	2153	0	0	0	0	0	0	0
Right Turn on Red	-		Yes	-		Yes	-	-	Yes	-	-	Yes
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		135			215			175			206	
Travel Time (s)		3.1			4.9			4.0			4.7	
Peak Hour Factor	0.84	0.84	0.84	0.97	0.97	0.97	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1014	0	0	673	0	0	0	0	0	0	0
Shared Lane Traffic (%)		1011			0.0							
Lane Group Flow (vph)	0	1014	0	0	673	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	20.0	0	, agair	2010	0	rugiit	2010	0	, agair	2010	0	rugiit
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		10			10			10			10	
Headway Factor	0.88	0.88	0.88	0.85	0.85	0.85	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	0.00	9	15	0.00	9	15	1.00	9	15	1.00	9
Number of Detectors	10	2		10	2		10			10		
Detector Template		Thru			Thru							
Leading Detector (ft)		100			100							
Trailing Detector (ft)		0			0							
Detector 1 Position(ft)		0			0							
Detector 1 Size(ft)		6			6							
Detector 1 Type		Cl+Ex			CI+Ex							
Detector 1 Channel		OITEX			OI LX							
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel		OITEX			OI LX							
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			6							
Permitted Phases					U							
Detector Phase		2			6							
שפופטנטו דוומשפ					U							

.ane Group Ø9 .ane Configurations Fraffic Volume (vph)
Traffic Volume (vph)
Future Volume (vph)
deal Flow (vphpl)
Lane Width (ft)
ane Util. Factor
rt
Tit Protected
Satd. Flow (prot)
Fit Permitted
Satd. Flow (perm)
Right Turn on Red
Satd. Flow (RTOR)
ink Speed (mph)
ink Opera (mpn)
Fravel Time (s)
Peak Hour Factor
Heavy Vehicles (%)
Adj. Flow (vph)
Shared Lane Traffic (%)
ane Group Flow (vph)
Enter Blocked Intersection
ane Alignment
▼
Median Width(ft) Link Offset(ft)
Crosswalk Width(ft)
Fivo way Left Turn Lane
Headway Factor Furning Speed (mph)
Number of Detectors
Detector Template
eading Detector (ft)
Frailing Detector (ft)
Detector 1 Position(ft)
Detector 1 Position(it) Detector 1 Size(ft)
Detector 1 Type
Detector 1 Type Detector 1 Channel
Detector 1 Charmer Detector 1 Extend (s)
Detector 1 Queue (s)
Detector 1 Delay (s)
Detector 2 Position(ft)
Detector 2 Fosition (it)
Detector 2 Type Detector 2 Channel
Detector 2 Extend (s)
Furn Type
Protected Phases 9
Permitted Phases
Detector Phase

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)		4.0			4.0							
Minimum Split (s)		20.5			20.5							
Total Split (s)		47.0			47.0							
Total Split (%)		67.1%			67.1%							
Maximum Green (s)		42.5			42.5							
Yellow Time (s)		3.5			3.5							
All-Red Time (s)		1.0			1.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		4.5			4.5							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0			3.0							
Recall Mode		C-Max			C-Max							
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)		4			4							
Act Effct Green (s)		47.5			47.5							
Actuated g/C Ratio		0.68			0.68							
v/c Ratio		0.73			0.46							
Control Delay		11.1			6.8							
Queue Delay		51.0			1.7							
Total Delay		62.1			8.5							
LOS		E 60.4			A							
Approach LOC		62.1			8.5							
Approach LOS		Е			А							
Intersection Summary												
	her											
Cycle Length: 70												
Actuated Cycle Length: 70	(l	0 EDT		. 01-1-1	0							
Offset: 16 (23%), Referenced t	to pnase	2:EBT ar	ıa 6:WB I	, Start of	Green							
Natural Cycle: 60												
Control Type: Actuated-Coordi	inated											
Maximum v/c Ratio: 0.73				l		1 OC. D						
Intersection Signal Delay: 40.7					itersection		^					
Intersection Capacity Utilization	11 40.0%			IC	CU Level o	of Service	А					
Analysis Period (min) 15												
Splits and Phases: 36: Minu	teman C	ommuter	Bikeway	& Lake S	Street							
→ Ø2 (R)								Fr _{Ø9}				
47 s								23 s				
← Ø6 (R)												

Lane Group	Ø9
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	18.0
Total Split (s)	23.0
Total Split (%)	33%
Maximum Green (s)	21.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	211
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

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	-	
Lane Group	EBT	WBT
Lane Group Flow (vph)	1014	673
v/c Ratio	0.73	0.46
Control Delay	11.1	6.8
Queue Delay	51.0	1.7
Total Delay	62.1	8.5
Queue Length 50th (ft)	230	226
Queue Length 95th (ft)	312	169
Internal Link Dist (ft)	55	135
Turn Bay Length (ft)		
Base Capacity (vph)	1390	1460
Starvation Cap Reductn	0	585
Spillback Cap Reductn	655	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	1.38	0.77
Intersection Summary		

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Volume (vph)	82	700	70	6	530	1	15	5	7	0	5	108
Future Volume (vph)	82	700	70	6	530	1	15	5	7	0	5	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	14	13	13	13	12	12	12	12	12	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.989						0.966			0.871	
Flt Protected		0.995			0.999			0.973				
Satd. Flow (prot)	0	1994	0	0	1961	0	0	1786	0	0	1655	0
Flt Permitted		0.893			0.991			0.635				
Satd. Flow (perm)	0	1790	0	0	1946	0	0	1165	0	0	1655	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8						9			140	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		215			1126			206			208	
Travel Time (s)		4.9			25.6			4.7			4.7	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.75	0.75	0.75	0.77	0.77	0.77
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	93	795	80	7	602	1	20	7	9	0	6	140
Shared Lane Traffic (%)				-					-	-	-	
Lane Group Flow (vph)	0	968	0	0	610	0	0	36	0	0	146	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					. •			. •				
Headway Factor	0.92	0.92	0.92	0.96	0.96	0.96	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	0.02	9	15	0.00	9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		Cl+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel	OI ZX	OI LX		OI - EX	OI LX		OI LX	OI LX		OI - EX	OI LA	
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	0.0	94		0.0	94		0.0	94		0.0	94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		CI+Ex			Cl+Ex			Cl+Ex			CI+Ex	
Detector 2 Channel		OI · EX			OI LX			OI LX			OI · EX	
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases	I GIIII	2		1 GIIII	6		1 CIIII	8			4	
Permitted Phases	2			6	U		8	U		4		
Detector Phase	2	2		6	6		8	8		4	4	
Detector Friase		۷		U	U		O	U		4	4	

Lane Group Ø9	
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Fit Protected	
Satd. Flow (prot)	
Fit Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases 9	
Permitted Phases	
Detector Phase	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.5	20.5		20.5	20.5		14.0	14.0		14.0	14.0	
Total Split (s)	36.0	36.0		36.0	36.0		14.0	14.0		14.0	14.0	
Total Split (%)	51.4%	51.4%		51.4%	51.4%		20.0%	20.0%		20.0%	20.0%	
Maximum Green (s)	31.5	31.5		31.5	31.5		9.5	9.5		9.5	9.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.5			4.5			4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Min	Min		Min	Min	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		43.2			43.2			7.0			7.0	
Actuated g/C Ratio		0.62			0.62			0.10			0.10	
v/c Ratio		0.87			0.51			0.29			0.50	
Control Delay		26.5			12.2			29.2			12.8	
Queue Delay		47.9			0.6			0.0			0.2	
Total Delay		74.4			12.7			29.2			13.0	
LOS		Е			В			С			В	
Approach Delay		74.4			12.7			29.2			13.0	
Approach LOS		Е			В			С			В	
Intersection Summary												
	Other											
Cycle Length: 70												
Actuated Cycle Length: 70				_								
Offset: 0 (0%), Referenced	to phase 2	:EBTL and	6:WBT	L, Start of	f Green, M	laster Inte	ersection					
Natural Cycle: 90												
Control Type: Actuated-Coo	ordinated											
Maximum v/c Ratio: 0.87												
Intersection Signal Delay: 4					ntersection		_					
Intersection Capacity Utiliza	ition 93.3%)		I(CU Level	ot Service	F					
Analysis Period (min) 15												
Splits and Phases: 39: Br	ooks Aver	ue & Lake	Street									
4 ø2 (R)					4	[®] Ø4		¥.	k _{Ø9}			
36 s					14 s			20 s				

↑ø8

Ø6 (R)

Lane Group	Ø9
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	18.0
Total Split (s)	20.0
Total Split (%)	29%
Maximum Green (s)	18.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	42
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

	-	•	†	Ţ
				_ •
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	968	610	36	146
v/c Ratio	0.87	0.51	0.29	0.50
Control Delay	26.5	12.2	29.2	12.8
Queue Delay	47.9	0.6	0.0	0.2
Total Delay	74.4	12.7	29.2	13.0
Queue Length 50th (ft)	~274	171	11	2
Queue Length 95th (ft)	#672	284	29	33
Internal Link Dist (ft)	135	1046	126	128
Turn Bay Length (ft)				
Base Capacity (vph)	1107	1200	165	345
Starvation Cap Reductn	247	0	0	0
Spillback Cap Reductn	0	254	0	18
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.13	0.64	0.22	0.45

Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

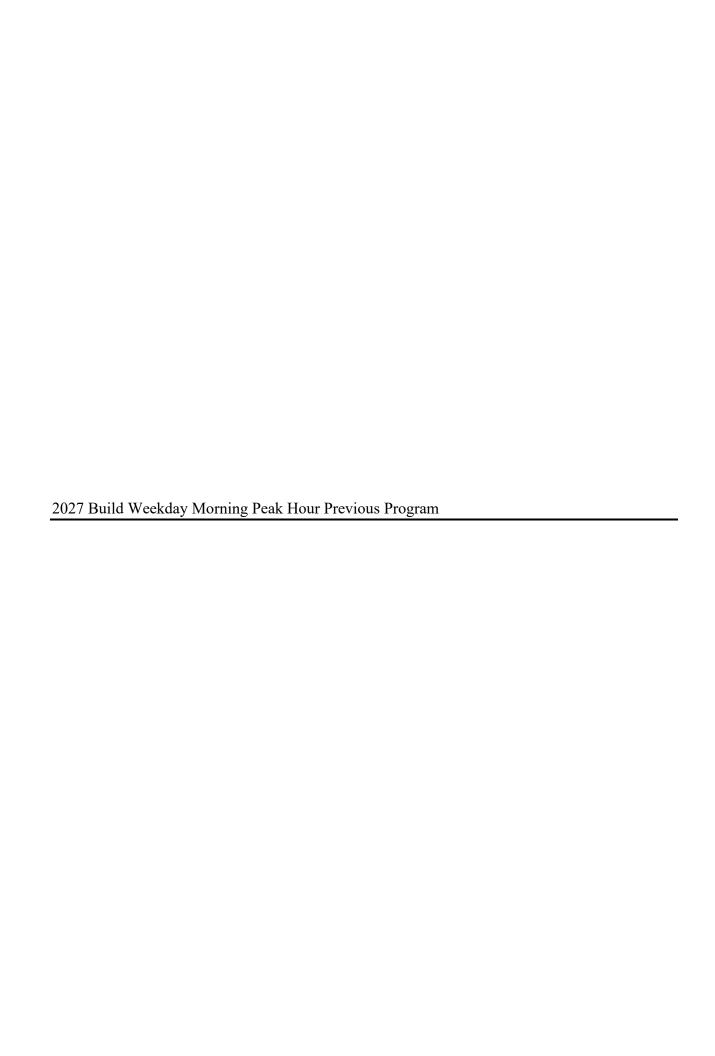
Intersection						
Int Delay, s/veh	0.4					
		EDD	WDI	WDT	NDI	NDD
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	}	•		4	, A	
Traffic Vol, veh/h	831	3	1	602	9	4
Future Vol, veh/h	831	3	1	602	9	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	
Storage Length	-	-	-	-	0	-
Veh in Median Storage		-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	94	94	75	75
Heavy Vehicles, %	0	0	0	0	29	0
Mvmt Flow	1001	4	1	640	12	5
Major/Minor	lais 1		/oicr0		Mine -1	
	Major1		Major2		Minor1	1000
Conflicting Flow All	0	0	1005	0	1645	1003
Stage 1	-	-	-	-	1003	-
Stage 2	-	-	-	-	642	-
Critical Hdwy	-	-	4.1	-	6.69	6.2
Critical Hdwy Stg 1	-	-	-	-	5.69	-
Critical Hdwy Stg 2	-	-	-	-	5.69	-
Follow-up Hdwy	-	-	2.2	-	3.761	3.3
Pot Cap-1 Maneuver	-	-	697	-	94	297
Stage 1	-	-	-	-	316	-
Stage 2	-	-	-	-	476	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	697	-	94	297
Mov Cap-2 Maneuver	_	_	-	_	94	-
Stage 1	_	_	_	_	316	_
Stage 2	_	_	_	_	475	_
Olaye Z			_		713	
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		40.3	
HCM LOS					E	
						=
Minor Lane/Major Mvm	t l	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)		119	-	-	697	-
HCM Lane V/C Ratio		0.146	-		0.002	-
HCM Control Delay (s)		40.3	-	-	10.2	0
HCM Lane LOS		Е	-	-	В	Α
HCM 95th %tile Q(veh)		0.5	-	-	0	-
,						

Intersection						
Int Delay, s/veh	0.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	Þ			र्स	N/	
Traffic Vol, veh/h	829	6	9	588	15	5
Future Vol, veh/h	829	6	9	588	15	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage,	# 0	-	_	0	0	-
Grade, %	0	_	_	0	0	-
Peak Hour Factor	87	87	89	89	75	75
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	953	7	10	661	20	7
WWITE I IOW	555	,	10	001	20	
Major/Minor Major/Minor	ajor1	<u> </u>	//ajor2	N	Minor1	
Conflicting Flow All	0	0	960	0	1638	957
Stage 1	-	-	-	-	957	-
Stage 2	-	_	-	-	681	-
Critical Hdwy	_	_	4.1	_	6.4	6.2
Critical Hdwy Stg 1	_	_	-	_	5.4	-
Critical Hdwy Stg 2	_	_	_	_	5.4	_
Follow-up Hdwy	_	_	2.2	<u>-</u>	3.5	3.3
Pot Cap-1 Maneuver	_	_	725	_	112	315
Stage 1	_	<u>-</u>	-	<u>-</u>	376	-
Stage 2	_	_	_	_	506	_
			_		500	-
Platoon blocked, %	-	-	705	-	440	245
Mov Cap-1 Maneuver	-	-	725	-	110	315
Mov Cap-2 Maneuver	-	-	-	-	110	-
Stage 1	-	-	-	-	376	-
Stage 2	-	-	-	-	495	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.2		39.4	
HCM LOS	U		0.2		39.4 E	
HOW LOS						
Minor Lane/Major Mvmt	1	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)		131	_	_	725	
HCM Lane V/C Ratio		0.204	_	_	0.014	_
HCM Control Delay (s)		39.4	_	_	10	0
HCM Lane LOS		39.4 E		<u> </u>	В	A
HCM 95th %tile Q(veh)		0.7	-	-	0	
HOW SOUL WILLE (Ven)		0.7	-	-	U	-

Intersection						
Int Delay, s/veh	0.3					
		EDD	WDI	WDT	NDI	NDD
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	₽			ની	¥	
Traffic Vol, veh/h	833	1	1	591	6	4
Future Vol, veh/h	833	1	1	591	6	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage,	# 0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	89	89	75	75
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	957	1	1	664	8	5
		•				
		_				
	1ajor1		//ajor2		Minor1	
Conflicting Flow All	0	0	958	0	1624	958
Stage 1	-	-	-	_	958	-
Stage 2	-	-	-	-	666	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	_	_	2.2	_	3.5	3.3
Pot Cap-1 Maneuver	-	-	726	_	114	315
Stage 1	_	_	-	_	376	-
Stage 2	_	_	_	_	515	_
Platoon blocked, %	_	_		_	010	
Mov Cap-1 Maneuver	_	_	726	_	114	315
Mov Cap-1 Maneuver	_	_	- 120	_	114	-
Stage 1	-	-	-	-	376	
	-	-	_	_	514	_
Stage 2	-	-	-	-	514	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		30.8	
HCM LOS					D	
110111 200						
Minor Lane/Major Mvmt	: 1	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)		153	-	-	726	-
HCM Lane V/C Ratio		0.087	-	-	0.002	-
HCM Control Delay (s)		30.8	-	-	10	0
HCM Lane LOS		D	-	-	Α	Α
HCM 95th %tile Q(veh)		0.3	-	-	0	-
, and any						

Intersection												
Int Delay, s/veh	1.1											
					=							
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4	_		4			4	
Traffic Vol, veh/h	4	814	19	11	578	8	13	1	6	3	0	1
Future Vol, veh/h	4	814	19	11	578	8	13	1	6	3	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
<u> </u>	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage,	# -	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	5	947	22	13	672	9	17	1	8	4	0	1
Major/Minor M	ajor1		N	Major2		N	Minor1		N	/linor2		
Conflicting Flow All	681	0	0	969	0	0	1671	1675	958	1676	1682	677
Stage 1	-	U	U	909	-	-	968	968	300	703	703	011
Stage 2	_	-	-	_	_	_	703	707	_	973	979	_
Critical Hdwy	4.1	_	<u>-</u>	4.1	<u>-</u>		7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	4.1	_	-	4.1	_	_	6.1	5.5	0.2	6.1	5.5	0.2
Critical Hdwy Stg 2		_	<u>-</u>	-	<u>-</u>		6.1	5.5	_	6.1	5.5	
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	5.5	3.3	3.5	5.5	3.3
Pot Cap-1 Maneuver	921	_	<u>-</u>	719	<u>-</u>		77	96	315	76	95	456
	921	•	-	719	-	-	308	335	315	431	443	400
Stage 1 Stage 2	-	-	-	-	_		431	441	-	306	331	-
Platoon blocked, %	-	•	-	•	-	-	401	441	•	300	JJ 1	-
Mov Cap-1 Maneuver	921	-	-	719	-	-	74	92	315	71	91	456
Mov Cap-1 Maneuver		•	-	113	-	-	74	92	315	71	91	400
Stage 1	-	-	-	-	-	<u>-</u>	304	331	-	426	430	-
Stage 1 Stage 2	-	•	-	•	-	-	417	428	-	293	327	-
Slaye 2	-	-	-	-	_	-	41/	420	-	293	321	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.2			55.6			47.5		
HCM LOS							F			Е		
Minor Lane/Major Mvmt	1	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR :	SBLn1			
Capacity (veh/h)		97	921		-	719	-	-	90			
HCM Lane V/C Ratio		0.275	0.005	_		0.018	_		0.059			
HCM Control Delay (s)		55.6	8.9	0	_	10.1	0	_				
HCM Lane LOS		55.0 F	Α	A	_	В	A	_	47.5 E			
HCM 95th %tile Q(veh)		1	0	-	-	0.1	-	-	0.2			
HOW JOHN JOHN Q(VEII)			U	_	_	0.1			0.2			

Int Delay, s/veh	Intersection												
Movement		8.3											
Lane Configurations													
Traffic Vol, veh/h		EBL		EBR	WBL		WBR	NBL		NBR	SBL		SBR
Future Vol, veh/h Conflicting Peds, #hhr O O O O O O O O O O O O O O O O O O													
Conflicting Peds, #hr O O O O O O O O O	The second secon												
Sign Control Free Free													
RT Channelized													
Storage Length		Free	Free		Free	Free		Stop	Stop		Stop	Stop	
Veh in Median Storage, # - 0		-	-	None	-	-	None	-	-	None	-	-	None
Grade, % - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 0 - 0<			-	-	-	-	-	-	-	-	-		-
Peak Hour Factor		# -	0	-	-		-	-		-	-		-
Heavy Vehicles, %													
Mymt Flow 23 964 5 68 656 18 11 0 53 11 0 14 Major/Minor Major1 Major2 Minor1 Minor2 Minor2 Conflicting Flow All 674 0 0 1273 0 0 2125 2127 1271 1840 2120 665 Stage 1 - - - - - 1317 1317 - 801 801 - Stage 2 - - - - - 1317 1317 - 801 801 - Critical Hdwy Stg 1 - - - - 6.1 5.5 6.2 6.1 5.5 - 6.1 5.5 - 6.1 5.5 - 6.1 5.5 - 6.1 5.5 - 6.1 5.5 - 6.1 5.5 - 6.1 5.5 - 6.1 5.5 - 6.1		83		83	88	88	88		81				
Major/Minor Major1	Heavy Vehicles, %			0					0				
Conflicting Flow All	Mvmt Flow	23	964	5	68	656	18	11	0	53	11	0	14
Conflicting Flow All													
Conflicting Flow All	Major/Minor NA	aior1		N	Major2		ı	Minor1		N	dinor?		
Stage 1 - - - - - 1317 1317 - 801 801 - Stage 2 - - - - - 808 810 - 1039 1319 - Critical Hdwy 4.1 - - 4.1 - - 7.1 6.5 6.2 7.1 6.5 6.2 Critical Hdwy Stg - - - - 6.1 5.5 - 6.1 5.5 - 6.1 5.5 - 6.1 5.5 - 6.1 5.5 - 6.1 5.5 - 6.1 5.5 - 6.1 5.5 - 6.1 5.5 - 6.1 5.5 - 6.1 5.5 - 6.1 5.5 - 6.1 5.5 - 6.1 5.5 - 6.1 5.5 - 6.1 5.5 - 6.1 5.5 - 6.1 5.5			^			0			2427			2420	CCE
Stage 2 - - - - - 808 810 - 1039 1319 - Critical Hdwy 4.1 - - 4.1 - - 7.1 6.5 6.2 7.1 6.5 6.2 Critical Hdwy Stg 1 - - - - 6.1 5.5 - 6.1 5.5 - 6.1 5.5 - 6.1 5.5 - 6.1 5.5 - 6.1 5.5 - 6.1 5.5 - 6.1 5.5 - 6.1 5.5 - 6.1 5.5 - 6.1 5.5 - 6.1 5.5 - 6.1 5.5 - 6.1 5.5 - 6.1 5.5 - 6.1 5.5 - 6.1 5.5 - 6.1 3.5 4 3.3 3.5 4 3.3 3.5 4 4.3 3.3 4 464 464 5.2 5.2	•	0/4		U	12/3		U						COO
Critical Hdwy 4.1 - - 4.1 - - 7.1 6.5 6.2 7.1 6.5 6.2 Critical Hdwy Stg 1 - - - - - 6.1 5.5		-		-	-		-						-
Critical Hdwy Stg 1 - - - - - 6.1 5.5 - 6.1 3.3 3.3 3.3 3.3 3.3 3.5 4 3.3 3.5 4 3.3 3.5 4 3.3 3.5 4 4.0 0.0 2.			-	-			-						
Critical Hdwy Stg 2 - - - - 6.1 5.5 - 6.1 5.5 - Follow-up Hdwy 2.2 - - 2.2 - - 3.5 4 3.3 3.5 4 3.3 Pot Cap-1 Maneuver 927 - - 552 - - 37 50 207 59 51 464 Stage 1 - - - - - 196 229 - 381 400 - Stage 2 - - - - - 378 396 - 281 229 - Mov Cap-1 Maneuver 927 - 412 - - 20 26 155 30 26 464 Mov Cap-2 Maneuver - - - - 138 162 - 360 294 - Stage 2 - - - - - 270			-	-			-						
Follow-up Hdwy 2.2 2.2 3.5 4 3.3 3.5 4 3.3 Pot Cap-1 Maneuver 927 552 37 50 207 59 51 464 Stage 1			-	-		-	-						
Pot Cap-1 Maneuver 927	, ,		-	-		-	-						
Stage 1 - - - - 196 229 - 381 400 - Stage 2 - - - - - 378 396 - 281 229 - Platoon blocked, % -<			-	-		-	-						
Stage 2			-	-		-	-						
Platoon blocked, %			-	-	-	-	-						
Mov Cap-1 Maneuver 927 - 412 - - 20 26 155 30 26 464 Mov Cap-2 Maneuver - - - - - 20 26 - 30 26 - Stage 1 - - - - - 138 162 - 360 294 - Stage 2 - - - - - 270 291 - 175 162 - Approach EB WB NB NB SB HCM Control Delay, s 0.2 1.4 179.4 97.8 HCM Lane/Major Mvmt NBLn1 EBL EBT EBR WBL WBT WBR SBLn1 Capacity (veh/h) 71 927 - - 412 - - 62 HCM Lane V/C Ratio 0.904 0.025 - - 0.165 - - 0.403		-	-	-	-	-	-	378	396	-	281	229	-
Mov Cap-2 Maneuver - - - - 20 26 - 30 26 - Stage 1 - - - - - 138 162 - 360 294 - Stage 2 - - - - - 270 291 - 175 162 - Approach EB WB NB NB SB HCM Control Delay, s 0.2 1.4 179.4 97.8 HCM Lane/Major Mvmt NBLn1 EBL EBT EBR WBL WBT WBR SBLn1 Capacity (veh/h) 71 927 - - 412 - - 62 HCM Lane V/C Ratio 0.904 0.025 - - 0.165 - - 0.403 HCM Control Delay (s) 179.4 9 0 - 15.5 0 - 97.8 HCM Lane LOS F		00-	-	-	440	-	-		0.0	4	^^		404
Stage 1 - - - - - - - - 360 294 - - Stage 2 -	•		-	-		-	-						
Stage 2 - - - - - 270 291 - 175 162 - Approach EB WB NB SB HCM Control Delay, s 0.2 1.4 179.4 97.8 HCM LOS F F F Minor Lane/Major Mvmt NBLn1 EBL EBT EBR WBL WBT WBR SBLn1 Capacity (veh/h) 71 927 - 412 - 62 HCM Lane V/C Ratio 0.904 0.025 - 0.165 - 0.403 HCM Control Delay (s) 179.4 9 0 - 15.5 0 - 97.8 HCM Lane LOS F A A - C A - F		-	-	-	-	-	-						-
Approach EB WB NB SB HCM Control Delay, s 0.2 1.4 179.4 97.8 HCM LOS F F F Minor Lane/Major Mvmt NBLn1 EBL EBT EBR WBL WBT WBR SBLn1 Capacity (veh/h) 71 927 - - 412 - - 62 HCM Lane V/C Ratio 0.904 0.025 - - 0.165 - - 0.403 HCM Control Delay (s) 179.4 9 0 - 15.5 0 - 97.8 HCM Lane LOS F A A - C A - F		-	-	-	-	-	-						-
HCM Control Delay, s 0.2 1.4 179.4 97.8 HCM LOS F F Minor Lane/Major Mvmt NBLn1 EBL EBT EBR WBL WBT WBR SBLn1 Capacity (veh/h) 71 927 412 62 HCM Lane V/C Ratio 0.904 0.025 0.165 0.403 HCM Control Delay (s) 179.4 9 0 - 15.5 0 - 97.8 HCM Lane LOS F A A - C A - F	Stage 2	-	-	-	-	-	-	270	291	-	175	162	-
HCM Control Delay, s 0.2 1.4 179.4 97.8 HCM LOS F F Minor Lane/Major Mvmt NBLn1 EBL EBT EBR WBL WBT WBR SBLn1 Capacity (veh/h) 71 927 412 62 HCM Lane V/C Ratio 0.904 0.025 0.165 0.403 HCM Control Delay (s) 179.4 9 0 - 15.5 0 - 97.8 HCM Lane LOS F A A - C A - F													
HCM Control Delay, s 0.2 1.4 179.4 97.8 HCM LOS F F Minor Lane/Major Mvmt NBLn1 EBL EBT EBR WBL WBT WBR SBLn1 Capacity (veh/h) 71 927 412 62 HCM Lane V/C Ratio 0.904 0.025 0.165 0.403 HCM Control Delay (s) 179.4 9 0 - 15.5 0 - 97.8 HCM Lane LOS F A A - C A - F	Approach	EB			WB			NB			SB		
Minor Lane/Major Mvmt NBLn1 EBL EBR WBL WBT WBR SBLn1 Capacity (veh/h) 71 927 - - 412 - - 62 HCM Lane V/C Ratio 0.904 0.025 - - 0.165 - - 0.403 HCM Control Delay (s) 179.4 9 0 - 15.5 0 - 97.8 HCM Lane LOS F A A - C A - F													
Minor Lane/Major Mvmt NBLn1 EBL EBR WBL WBT WBR SBLn1 Capacity (veh/h) 71 927 - - 412 - - 62 HCM Lane V/C Ratio 0.904 0.025 - - 0.165 - - 0.403 HCM Control Delay (s) 179.4 9 0 - 15.5 0 - 97.8 HCM Lane LOS F A A - C A - F		0.2			11								
Capacity (veh/h) 71 927 412 62 HCM Lane V/C Ratio 0.904 0.025 0.165 0.403 HCM Control Delay (s) 179.4 9 0 - 15.5 0 - 97.8 HCM Lane LOS F A A - C A - F	TOW LOO							'			'		
Capacity (veh/h) 71 927 412 62 HCM Lane V/C Ratio 0.904 0.025 0.165 0.403 HCM Control Delay (s) 179.4 9 0 - 15.5 0 - 97.8 HCM Lane LOS F A A - C A - F	M		UDI 4	ED!	EDT	ED D	14/51	MOT	MES	ODL 4			
HCM Lane V/C Ratio 0.904 0.025 - - 0.165 - - 0.403 HCM Control Delay (s) 179.4 9 0 - 15.5 0 - 97.8 HCM Lane LOS F A A - C A - F					FRI	FRK		MRI	WRK :				
HCM Control Delay (s) 179.4 9 0 - 15.5 0 - 97.8 HCM Lane LOS F A A - C A - F					-								
HCM Lane LOS F A A - C A - F						-			-				
						-			-				
HCM 95th %tile O(yeh) 4.5 0.1 0.6 1.5					Α	-		Α	-				
110W 30W 70W 4.0 0.1	HCM 95th %tile Q(veh)		4.5	0.1	-	-	0.6	-	-	1.5			



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Lane Group	EBL	EBR	SET	SER	NWL	NWT	Ø9
Lane Configurations	*	7	† †	7	ሻ	1	
Traffic Volume (vph)	261	295	851	609	403	454	
Future Volume (vph)	261	295	851	609	403	454	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	1900	1900	1900	1900	1900	1900	
. ,	0	100	11		150	12	
Storage Length (ft)				55			
Storage Lanes	1	1		1	1		
Taper Length (ft)	25	4.00	0.05	4.00	25	4.00	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	1.00	
Frt	2 2 - 2	0.850		0.850			
Flt Protected	0.950				0.950		
Satd. Flow (prot)	2025	1812	3421	1492	1728	1863	
Flt Permitted	0.950				0.142		
Satd. Flow (perm)	2025	1812	3421	1492	258	1863	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)		245		212			
Link Speed (mph)	30		30			30	
Link Distance (ft)	1126		640			645	
Travel Time (s)	25.6		14.5			14.7	
Peak Hour Factor	0.91	0.91	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	1%	1%	2%	1%	1%	2%	
Adj. Flow (vph)	287	324	925	662	438	493	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	287	324	925	662	438	493	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Right	Left	Left	
Median Width(ft)	16	ragin	11	ragin	LOIL	11	
Link Offset(ft)	0		0			0	
Crosswalk Width(ft)	16		16			16	
Two way Left Turn Lane	10		10			10	
	0.85	0.85	1.04	1.09	1.04	1.00	
Headway Factor			1.04			1.00	
Turning Speed (mph)	15	9	0	9	15	0	
Number of Detectors	1	1 Dialet	2 Thank		1	2 Thank	
Detector Template	Left	Right	Thru	Right	Left	Thru	
Leading Detector (ft)	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	
Detector 1 Size(ft)	20	20	6	20	20	6	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)			94			94	
Detector 2 Size(ft)			6			6	
Detector 2 Type			CI+Ex			CI+Ex	
Detector 2 Channel							
Detector 2 Channel Detector 2 Extend (s)			0.0			0.0	

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Lane Group	EBL	EBR	SET	SER	NWL	NWT	Ø9	
Protected Phases	4		6		5	2	9	
Permitted Phases		4		6	2			
Detector Phase	4	4	6	6	5	2		
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	23.0	23.0	23.0	23.0	10.0	23.0	19.0	
Total Split (s)	29.0	29.0	38.0	38.0	15.0	53.0	23.0	
Total Split (%)	27.6%	27.6%	36.2%	36.2%	14.3%	50.5%	22%	
Maximum Green (s)	22.0	22.0	31.0	31.0	9.0	46.0	20.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	4.0	2.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	7.0	7.0	7.0	7.0	6.0	7.0		
Lead/Lag			Lag	Lag	Lead			
Lead-Lag Optimize? Vehicle Extension (s)	3.0	3.0	Yes 3.0	Yes 3.0	Yes 3.0	3.0	3.0	
Recall Mode	None	None	Max	Max	None	Max	None	
Walk Time (s)	None	None	IVIAX	IVIAX	None	IVIAX	5.0	
Flash Dont Walk (s)							11.0	
Pedestrian Calls (#/hr)							35	
Act Effct Green (s)	17.2	17.2	31.8	31.8	48.2	47.2		
Actuated g/C Ratio	0.19	0.19	0.36	0.36	0.54	0.53		
v/c Ratio	0.73	0.59	0.76	0.99	1.50	0.50		
Control Delay	46.7	14.3	32.8	55.6	261.8	18.7		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	46.7	14.3	32.8	55.6	261.8	18.7		
LOS	D	В	С	Е	F	В		
Approach Delay	29.5		42.3			133.1		
Approach LOS	С		D			F		
Intersection Summary								
Area Type:	Other							
Cycle Length: 105								
Actuated Cycle Length: 88.9								
Natural Cycle: 120								
Control Type: Actuated-Unco	oordinated	l						
Maximum v/c Ratio: 1.50								
Intersection Signal Delay: 66						n LOS: E		
Intersection Capacity Utilizat	ion 77.0%)		I	CU Level	of Service	D D	
Analysis Period (min) 15								
Splits and Phases: 2: Mas	sachusett	s Aevnue	/Massacl	nusetts A			et	
™ _{Ø2}						Ø4		∦\$ ø9
53 s					29 s	-		23 s

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Lane Group	EBL	EBR	SET	SER	NWL	NWT
Lane Group Flow (vph)	287	324	925	662	438	493
v/c Ratio	0.73	0.59	0.76	0.99	1.50	0.50
Control Delay	46.7	14.3	32.8	55.6	261.8	18.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.7	14.3	32.8	55.6	261.8	18.7
Queue Length 50th (ft)	170	42	282	~364	~339	214
Queue Length 95th (ft)	259	125	#409	#606	#554	332
Internal Link Dist (ft)	1046		560			565
Turn Bay Length (ft)		100		55	150	
Base Capacity (vph)	514	642	1224	669	292	989
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.50	0.76	0.99	1.50	0.50

Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

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Lane Group	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations	<u></u>	7	**************************************	^		Ä	7
Traffic Volume (vph)	312	493	212	421	271	221	523
Future Volume (vph)	312	493	212	421	271	221	523
	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)							
Lane Width (ft)	16	16	10	11	12	16	14
Storage Length (ft)		150	110			0	0
Storage Lanes		1	1			1	1
Taper Length (ft)	4.00	4.00	25	2.25	4.00	25	4.00
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Frt		0.850					0.850
Flt Protected			0.950			0.950	
Satd. Flow (prot)	2132	1812	1685	3455	0	2037	1706
Flt Permitted			0.950			0.950	
Satd. Flow (perm)	2132	1812	1685	3455	0	2037	1706
Right Turn on Red		Yes					Yes
Satd. Flow (RTOR)		332					405
Link Speed (mph)	30			30		30	
Link Distance (ft)	239			505		387	
Travel Time (s)	5.4			11.5		8.8	
Peak Hour Factor	0.91	0.91	0.84	0.84	0.91	0.91	0.91
Heavy Vehicles (%)	1%	1%	0%	1%	0%	1%	1%
Adj. Flow (vph)	343	542	252	501	298	243	575
Shared Lane Traffic (%)	U 1 U	UTL	202	001	230	270	010
Lane Group Flow (vph)	343	542	252	501	0	541	575
Enter Blocked Intersection	No	No	No	No	No	No	No
					R NA		
Lane Alignment	Left	Right	Left	Left	K IVA	Left	Right
Median Width(ft)	12			12		16	
Link Offset(ft)	0			0		0	
Crosswalk Width(ft)	16			16		16	
Two way Left Turn Lane							
Headway Factor	0.85	0.85	1.09	1.04	1.00	0.85	0.92
Turning Speed (mph)		9	15		9	15	9
Number of Detectors	2	1	1	2	1	1	1
Detector Template	Thru	Right	Left	Thru	Left	Left	Right
Leading Detector (ft)	100	20	20	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	Cl+Ex
Detector 1 Channel	OIILX	OITEX	OITEX	OITEX	OI LX	OLILA	OITEX
	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94			
Detector 2 Size(ft)	6			6			
Detector 2 Type	CI+Ex			CI+Ex			
Detector 2 Channel							
Detector 2 Extend (s)	0.0			0.0			
Turn Type	NA	Free	Prot	NA	Perm	Prot	Perm

	-	•	•	•	₹ì	•	-
Lane Group	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Protected Phases	4		3	8		2	
Permitted Phases		Free			2		2
Detector Phase	4		3	8	2	2	2
Switch Phase							
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0		9.0	21.0	21.0	21.0	21.0
Total Split (s)	74.0		25.0	99.0	21.0	21.0	21.0
Total Split (%)	61.7%		20.8%	82.5%	17.5%	17.5%	17.5%
Maximum Green (s)	69.0		20.0	94.0	16.0	16.0	16.0
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0		5.0	5.0		5.0	5.0
Lead/Lag	Lag		Lead				
Lead-Lag Optimize?	Yes		Yes				
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0
Recall Mode	None		None	None	Max	Max	Max
Walk Time (s)	5.0			5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0			11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0	0
Act Effct Green (s)	15.8	63.5	16.4	37.3		16.1	16.1
Actuated g/C Ratio	0.25	1.00	0.26	0.59		0.25	0.25
v/c Ratio	0.65	0.30	0.58	0.25		1.04	0.78
Control Delay	27.8	0.4	27.3	6.4		80.3	17.0
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	27.8	0.4	27.3	6.4		80.3	17.0
LOS	С	Α	С	Α		F	В
Approach Delay	11.0			13.4		47.7	
Approach LOS	В			В		D	
Intersection Summary							

Area Type: Other

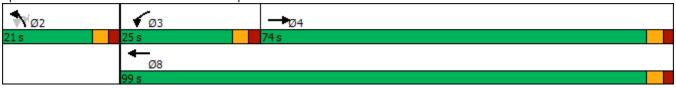
Cycle Length: 120 Actuated Cycle Length: 63.5 Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.04 Intersection Signal Delay: 26.5 Intersection Capacity Utilization 67.9% Analysis Period (min) 15

Intersection LOS: C ICU Level of Service C

Splits and Phases: 5: Route 2 EB On/Off Ramps & Lake Street



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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	343	542	252	501	541	575
v/c Ratio	0.65	0.30	0.58	0.25	1.04	0.78
Control Delay	27.8	0.4	27.3	6.4	80.3	17.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.8	0.4	27.3	6.4	80.3	17.0
Queue Length 50th (ft)	119	0	84	43	~236	55
Queue Length 95th (ft)	205	0	152	57	#482	#246
Internal Link Dist (ft)	159			425	307	
Turn Bay Length (ft)		150	110			
Base Capacity (vph)	2110	1812	535	3455	518	735
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.30	0.47	0.15	1.04	0.78

Intersection Summary

Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations	7	†			†	7				Ť	4	7
Traffic Volume (vph)	224	611	0	0	482	725	0	0	0	151	6	11
Future Volume (vph)	224	611	0	0	482	725	0	0	0	151	6	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	11	10	12	12	12	11	12	16
Storage Length (ft)	250		0	0		75	0		0	100		0
Storage Lanes	1		0	0		1	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt						0.850						0.850
Flt Protected	0.950									0.950	0.956	
Satd. Flow (prot)	1805	1881	0	0	1837	1492	0	0	0	1579	1594	1830
Flt Permitted	0.950									0.950	0.956	
Satd. Flow (perm)	1805	1881	0	0	1837	1492	0	0	0	1579	1594	1830
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						492						136
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		505			380			459			529	
Travel Time (s)		11.5			8.6			10.4			12.0	
Peak Hour Factor	0.88	0.88	0.88	0.92	0.92	0.92	0.92	0.92	0.92	0.81	0.81	0.81
Heavy Vehicles (%)	0%	1%	0%	0%	0%	1%	0%	0%	0%	5%	50%	0%
Adj. Flow (vph)	255	694	0	0	524	788	0	0	0	186	7	14
Shared Lane Traffic (%)							-			48%	•	
Lane Group Flow (vph)	255	694	0	0	524	788	0	0	0	97	96	14
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.04	1.09	1.00	1.00	1.00	1.04	1.00	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2	1				1	2	1
Detector Template	Left	Thru			Thru	Right				Left	Thru	Right
Leading Detector (ft)	20	100			100	20				20	100	20
Trailing Detector (ft)	0	0			0	0				0	0	0
Detector 1 Position(ft)	0	0			0	0				0	0	0
Detector 1 Size(ft)	20	6			6	20				20	6	20
Detector 1 Type	CI+Ex	CI+Ex			CI+Ex	CI+Ex				CI+Ex	CI+Ex	Cl+Ex
Detector 1 Channel	OI EX	O. LA			O. Ex	OI LX				O. Ex	O. Ex	OI EX
Detector 1 Extend (s)	0.0	0.0			0.0	0.0				0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0			0.0	0.0				0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0			0.0	0.0				0.0	0.0	0.0
Detector 2 Position(ft)	0.0	94			94	0.0				0.0	94	0.0
Detector 2 Size(ft)		6			6						6	
Detector 2 Type		CI+Ex			Cl+Ex						CI+Ex	
Detector 2 Channel		OI. LX			OI. LX						OI? LX	
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type	Prot	NA			NA	Perm				Split	NA	Perm
Tum Type	1 100	11/7			11/7	ı Gilli				Οριιι	11/7	1 61111

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Protected Phases	7	4			8					2	2	
Permitted Phases						8						2
Detector Phase	7	4			8	8				2	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0			4.0	4.0				4.0	4.0	4.0
Minimum Split (s)	8.5	22.0			22.0	22.0				22.0	22.0	22.0
Total Split (s)	16.0	38.0			22.0	22.0				22.0	22.0	22.0
Total Split (%)	26.7%	63.3%			36.7%	36.7%				36.7%	36.7%	36.7%
Maximum Green (s)	11.5	32.0			16.0	16.0				16.0	16.0	16.0
Yellow Time (s)	4.0	4.0			4.0	4.0				4.0	4.0	4.0
All-Red Time (s)	0.5	2.0			2.0	2.0				2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0				0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0			6.0	6.0				6.0	6.0	6.0
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Vehicle Extension (s)	3.0	3.0			3.0	3.0				3.0	3.0	3.0
Recall Mode	None	None			None	None				Max	Max	Max
Walk Time (s)		5.0			5.0	5.0				5.0	5.0	5.0
Flash Dont Walk (s)		11.0			11.0	11.0				11.0	11.0	11.0
Pedestrian Calls (#/hr)		0			0	0				0	0	0
Act Effct Green (s)	11.0	31.5			16.0	16.0				16.0	16.0	16.0
Actuated g/C Ratio	0.18	0.53			0.27	0.27				0.27	0.27	0.27
v/c Ratio	0.77	0.70			1.06	1.04				0.23	0.22	0.02
Control Delay	40.9	15.1			83.8	54.7				19.0	18.9	0.1
Queue Delay	0.0	0.0			0.0	0.0				0.0	0.0	0.0
Total Delay	40.9	15.1			83.8	54.7				19.0	18.9	0.1
LOS	D	В			F	D				В	В	Α
Approach Delay		22.0			66.3						17.7	
Approach LOS		С			Е						В	
Intersection Summary												
Area Type:	Other											
Cycle Length: 60												
Actuated Cycle Length: 59).5											
Natural Cycle: 80												
Control Type: Actuated-Ur	ncoordinated	l										
Maximum v/c Ratio: 1.06												
Intersection Signal Delay:					ntersectio							
Intersection Capacity Utiliz	zation 75.4%)		10	CU Level	of Service	e D					
Analysis Period (min) 15												

Splits and Phases: 7: Route 2 WB Off Ramp & Lake Street



	>	→	←	*_	*	×	4
Lane Group	EBL	EBT	WBT	WBR	NWL	NWT	NWR
Lane Group Flow (vph)	255	694	524	788	97	96	14
v/c Ratio	0.77	0.70	1.06	1.04	0.23	0.22	0.02
Control Delay	40.9	15.1	83.8	54.7	19.0	18.9	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.9	15.1	83.8	54.7	19.0	18.9	0.1
Queue Length 50th (ft)	88	168	~217	~169	28	28	0
Queue Length 95th (ft)	#179	268	#381	#364	56	55	0
Internal Link Dist (ft)		425	300			449	
Turn Bay Length (ft)	250			75	100		
Base Capacity (vph)	348	1012	494	760	425	429	591
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.69	1.06	1.04	0.23	0.22	0.02

Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

	_#	→	←	٤	4	1				
Lane Group	EBL	EBT	WBT	WBR	SWL	SWR	Ø3	Ø4		
Lane Configurations			ተተተ			77	~~	~ .		
Traffic Volume (vph)	0	0	1597	0	0	1062				
Future Volume (vph)	0	0	1597	0	0	1062				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900				
Lane Width (ft)	13	13	13	13	13	13				
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.88				
Frt	1.00	1.00	0.01	1.00	1.00	0.850				
Flt Protected						0.000				
Satd. Flow (prot)	0	0	4729	0	0	2617				
Flt Permitted			4123	U	U	2017				
Satd. Flow (perm)	0	0	4729	0	0	2617				
Right Turn on Red			4123	Yes	U	Yes				
Satd. Flow (RTOR)				100		7				
Link Speed (mph)		30	30		30	,				
Link Distance (ft)		201	192		296					
Travel Time (s)		4.6	4.4		6.7					
Peak Hour Factor	0.92	0.92	0.90	0.92	0.92	0.85				
Heavy Vehicles (%)	2%	2%	2%	2%	2%	1%				
Adj. Flow (vph)	0	0	1774	0	0	1249				
Shared Lane Traffic (%)	0	U	1117	U	0	1245				
Lane Group Flow (vph)	0	0	1774	0	0	1249				
Enter Blocked Intersection	No	No	No	No	No	No				
Lane Alignment	Left	Left	Left	Right	Left	Right				
Median Width(ft)	LOIL	0	0	ragnt	0	ragni				
Link Offset(ft)		0	0		0					
Crosswalk Width(ft)		16	16		16					
Two way Left Turn Lane		10	10		10					
Headway Factor	1.10	1.10	1.10	1.10	1.10	1.10				
Turning Speed (mph)	15	1.10	1.10	9	15	30				
Number of Detectors	10		2	J	10	1				
Detector Template			Thru			Right				
Leading Detector (ft)			100			20				
Trailing Detector (ft)			0			0				
Detector 1 Position(ft)			0			0				
Detector 1 Size(ft)			6			20				
Detector 1 Type			CI+Ex			CI+Ex				
Detector 1 Channel			OI · LX			OI · LX				
Detector 1 Extend (s)			0.0			0.0				
Detector 1 Queue (s)			0.0			0.0				
Detector 1 Delay (s)			0.0			0.0				
Detector 2 Position(ft)			94			0.0				
Detector 2 Size(ft)			6							
Detector 2 Type			CI+Ex							
Detector 2 Channel			OI · LX							
Detector 2 Extend (s)			0.0							
Turn Type			NA			custom				
Protected Phases			2			3 4	3	4		
Permitted Phases						J T	J			
Detector Phase			2			3 4				
Detector i liase			۷			J 4				

	_#	→	•	€.	Ĺ	1				
Lane Group	EBL	EBT	WBT	WBR	SWL	SWR	Ø3	Ø4		
Switch Phase						• • • • • • • • • • • • • • • • • • • •		~ .		
Minimum Initial (s)			10.0				10.0	10.0		
Minimum Split (s)			15.0				19.0	15.0		
Total Split (s)			58.0				36.0	26.0		
Total Split (%)			48.3%				30%	22%		
Maximum Green (s)			53.0				30.0	21.0		
Yellow Time (s)			4.0				4.0	3.5		
All-Red Time (s)			1.0				2.0	1.5		
Lost Time Adjust (s)			0.0							
Total Lost Time (s)			5.0							
Lead/Lag							Lead	Lag		
Lead-Lag Optimize?								<u> </u>		
Vehicle Extension (s)			3.0				3.0	3.0		
Recall Mode			C-Max				Max	Max		
Walk Time (s)							5.0			
Flash Dont Walk (s)							8.0			
Pedestrian Calls (#/hr)							0			
Act Effct Green (s)			53.0			56.0				
Actuated g/C Ratio			0.44			0.47				
v/c Ratio			0.85			1.02				
Control Delay			5.6			62.8				
Queue Delay			4.6			0.0				
Total Delay			10.1			62.8				
LOS			В			Е				
Approach Delay			10.1		62.8					
Approach LOS			В		E					
Intersection Summary										
Area Type: CE	3D									
Cycle Length: 120										
Actuated Cycle Length: 120										
Offset: 16 (13%), Referenced	to phase	2:WBT,	Start of G	reen						
Natural Cycle: 110										
Control Type: Actuated-Coord	inated									
Maximum v/c Ratio: 1.09										
Intersection Signal Delay: 31.9					Intersection					
Intersection Capacity Utilizatio	n 84.7%				ICU Level	of Service	E			
Analysis Period (min) 15										
Splits and Phases: 11: Rout	te 2/Alew	ife Brook	Parkway	& Rout	e 16					
#11 #12 #13 #14						12 #13 #	14		#11 #12 #13	3 #14
← ★ ★ Ø2 (R)					₹,	, 1	4 Ø3		* 1	Ø4

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0	WDT	OME
Lane Group	WBT	SWR
Lane Group Flow (vph)	1774	1249
v/c Ratio	0.85	1.02
Control Delay	5.6	62.8
Queue Delay	4.6	0.0
Total Delay	10.1	62.8
Queue Length 50th (ft)	43	~581
Queue Length 95th (ft)	m40	#659
Internal Link Dist (ft)	112	
Turn Bay Length (ft)		
Base Capacity (vph)	2088	1225
Starvation Cap Reductn	252	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.97	1.02

- Volume exceeds capacity, queue is theoretically infinite.
 - Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
 - Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

	⊿	*_	ļ	*
Lane Group	EBL	WBR	SBT	NWT
Lane Configurations	ሻሻ	7	^	^
Traffic Volume (vph)	505	169	506	1428
Future Volume (vph)	505	169	506	1428
Ideal Flow (vphpl)	1900	1900	1900	1900
Lane Width (ft)	1300	1900	1300	1300
Lane Util. Factor	0.97	1.00	0.95	0.95
	0.97		0.95	0.95
Frt	0.050	0.865		
Flt Protected	0.950	4504	0004	2024
Satd. Flow (prot)	3224	1581	3291	3291
FIt Permitted	0.950			
Satd. Flow (perm)	3224	1581	3291	3291
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)			30	30
Link Distance (ft)			202	278
Travel Time (s)			4.6	6.3
Peak Hour Factor	0.97	0.94	0.85	0.90
Heavy Vehicles (%)	1%	6%	2%	2%
Adj. Flow (vph)	521	180	595	1587
Shared Lane Traffic (%)	021	100	330	1001
Lane Group Flow (vph)	521	180	595	1587
Enter Blocked Intersection	No	No	No	No
			Left	
Lane Alignment	Left	R NA		L NA
Median Width(ft)			0	0
Link Offset(ft)			0	0
Crosswalk Width(ft)			16	16
Two way Left Turn Lane				
Headway Factor	1.10	0.97	1.10	1.10
Turning Speed (mph)	15	30		
Number of Detectors	1	1	2	2
Detector Template	Left	Right	Thru	Thru
Leading Detector (ft)	20	20	100	100
Trailing Detector (ft)	0	0	0	0
Detector 1 Position(ft)	0	0	0	0
Detector 1 Size(ft)	20	20	6	6
Detector 1 Type	CI+Ex	Cl+Ex	CI+Ex	CI+Ex
Detector 1 Channel	CITEX	OITEX	OITEX	OITEX
	0.0	0.0	0.0	0.0
Detector 1 Extend (s)	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94	94
Detector 2 Size(ft)			6	6
Detector 2 Type			CI+Ex	CI+Ex
Detector 2 Channel				
Detector 2 Extend (s)			0.0	0.0
Turn Type	Prot	Prot	NA	NA
Protected Phases	4	2!	3	2!
Permitted Phases				
	4	2	3	2
Detector Phase	4	2	3	2

	#	~	¥	_
Lane Group	EBL	WBR	SBT	NWT
Switch Phase				
Minimum Initial (s)	10.0	10.0	10.0	10.0
Minimum Split (s)	15.0	15.0	19.0	15.0
Total Split (s)	26.0	58.0	36.0	58.0
Total Split (%)	21.7%	48.3%	30.0%	48.3%
Maximum Green (s)	21.0	53.0	30.0	53.0
Yellow Time (s)	3.5	4.0	4.0	4.0
All-Red Time (s)	1.5	1.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	5.0
Lead/Lag	Lag		Lead	
Lead-Lag Optimize?				
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	Max	C-Max	Max	C-Max
Walk Time (s)			5.0	
Flash Dont Walk (s)			8.0	
Pedestrian Calls (#/hr)			0	
Act Effct Green (s)	21.0	53.0	30.0	53.0
Actuated g/C Ratio	0.18	0.44	0.25	0.44
v/c Ratio	0.92	0.26	0.72	1.09
Control Delay	72.2	14.3	47.1	85.8
Queue Delay	0.0	2.4	0.0	3.3
Total Delay	72.2	16.7	47.1	89.1
LOS	E	В	D	F
Approach Delay			47.1	89.1
Approach LOS			D	F
Intono - etiana O				

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Intersection Summary

Area Type: CBD

Cycle Length: 120 Actuated Cycle Length: 120

Offset: 16 (13%), Referenced to phase 2:WBT, Start of Green

Natural Cycle: 110

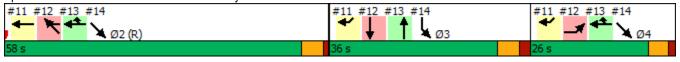
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.09

Intersection Signal Delay: 72.8 Intersection LOS: E Intersection Capacity Utilization 103.7% ICU Level of Service G

Analysis Period (min) 15

12: Alewife Brook Parkway & Route 2 Splits and Phases:



[!] Phase conflict between lane groups.

	#	*	↓	×
Lane Group	EBL	WBR	SBT	NWT
Lane Group Flow (vph)	521	180	595	1587
v/c Ratio	0.92	0.26	0.72	1.09
Control Delay	72.2	14.3	47.1	85.8
Queue Delay	0.0	2.4	0.0	3.3
Total Delay	72.2	16.7	47.1	89.1
Queue Length 50th (ft)	206	86	223	~730
Queue Length 95th (ft)	#308	138	269	#868
Internal Link Dist (ft)			122	198
Turn Bay Length (ft)				
Base Capacity (vph)	564	698	822	1453
Starvation Cap Reductn	0	397	0	0
Spillback Cap Reductn	0	6	0	13
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.92	0.60	0.72	1.10

Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

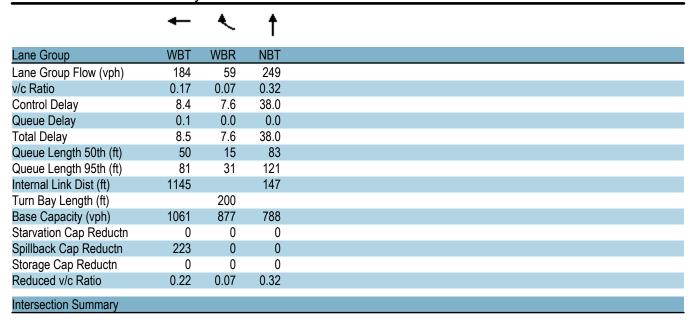
	۶	→	•	•	←	•	1	†	/	/	↓	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					*	7		^				
Traffic Volume (vph)	0	0	0	0	169	54	0	224	0	0	0	0
Future Volume (vph)	0	0	0	0	169	54	0	224	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		200	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25		-	25		-	25			25		•
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor			,,,,,									
Frt						0.850						
Flt Protected												
Satd. Flow (prot)	0	0	0	0	1613	1333	0	3154	0	0	0	0
Flt Permitted	•	•	•									
Satd. Flow (perm)	0	0	0	0	1613	1333	0	3154	0	0	0	0
Right Turn on Red	•	•	No			No	No		No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		161			1225			227			185	
Travel Time (s)		3.7			27.8			5.2			4.2	
Confl. Peds. (#/hr)		0.7			21.0	2		0.2			1.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.90	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	0%	6%	9%	2%	3%	2%	2%	2%	2%
Adj. Flow (vph)	0	0	0	0	184	59	0	249	0	0	0	0
Shared Lane Traffic (%)										•		
Lane Group Flow (vph)	0	0	0	0	184	59	0	249	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane											. •	
Headway Factor	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors					2	1		2				
Detector Template					Thru	Right		Thru				
Leading Detector (ft)					100	20		100				
Trailing Detector (ft)					0	0		0				
Detector 1 Position(ft)					0	0		0				
Detector 1 Size(ft)					6	20		6				
Detector 1 Type					CI+Ex	CI+Ex		CI+Ex				
Detector 1 Channel					OI - EX	OI LX		OI LX				
Detector 1 Extend (s)					0.0	0.0		0.0				
Detector 1 Queue (s)					0.0	0.0		0.0				
Detector 1 Delay (s)					0.0	0.0		0.0				
Detector 2 Position(ft)					94	0.0		94				
Detector 2 Fosition(it)					6			6				
Detector 2 Type					Cl+Ex			CI+Ex				
Detector 2 Channel					OI? EX			OI · LX				
Detector 2 Extend (s)					0.0			0.0				
Detector 2 Exterior (9)					0.0			0.0				

Lane Group	Ø2	Ø4
Lane Configurations	WL.	NT -
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Number of Detectors		
Detector Template		
Leading Detector (ft)		
Trailing Detector (ft)		
Detector 1 Position(ft)		
Detector 1 Size(ft)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(ft)		
Detector 2 Size(ft)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		

NBL Lane Group **EBL EBT EBR WBL WBT** WBR **NBT** NBR SBL SBT **SBR** Turn Type NA Prot NA Protected Phases 24 24 3 Permitted Phases **Detector Phase** 24 24 3 Switch Phase Minimum Initial (s) 10.0 Minimum Split (s) 19.0 Total Split (s) 36.0 Total Split (%) 30.0% Maximum Green (s) 30.0 Yellow Time (s) 4.0 2.0 All-Red Time (s) 0.0 Lost Time Adjust (s) Total Lost Time (s) 6.0 Lead/Lag Lead Lead-Lag Optimize? Vehicle Extension (s) 3.0 Recall Mode Max Walk Time (s) 5.0 Flash Dont Walk (s) 0.8 Pedestrian Calls (#/hr) 0 Act Effct Green (s) 79.0 79.0 30.0 0.66 Actuated g/C Ratio 0.66 0.25 v/c Ratio 0.17 0.07 0.32 Control Delay 8.4 7.6 38.0 Queue Delay 0.1 0.0 0.0 **Total Delay** 8.5 7.6 38.0 LOS D Α Α 8.3 38.0 Approach Delay Approach LOS Α D Intersection Summary Area Type: **CBD** Cycle Length: 120 Actuated Cycle Length: 120 Offset: 16 (13%), Referenced to phase 2:WBT, Start of Green Natural Cycle: 110 Control Type: Actuated-Coordinated Maximum v/c Ratio: 1.09 Intersection Signal Delay: 23.3 Intersection LOS: C Intersection Capacity Utilization 27.4% ICU Level of Service A Analysis Period (min) 15

Splits and Phases: 13: Alewife Brook Parkway & Route 2/Rt 2 WB Access

_		
Lane Group	Ø2	Ø4
Turn Type		
Protected Phases	2	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	10.0	10.0
Minimum Split (s)	15.0	15.0
Total Split (s)	58.0	26.0
Total Split (%)	48%	22%
Maximum Green (s)	53.0	21.0
Yellow Time (s)	4.0	3.5
All-Red Time (s)	1.0	1.5
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		Lag
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	3.0
Recall Mode	C-Max	Max
Walk Time (s)		
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Cummers		
Intersection Summary		



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Lane Group	SBL	SBR	SEL	SET	NWT	NWR	Ø2	Ø4	
Lane Configurations	ሻሻ			^					
Traffic Volume (vph)	506	0	0	1104	0	0			
Future Volume (vph)	506	0	0	1104	0	0			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Lane Width (ft)	13	13	13	13	13	13			
Lane Util. Factor	0.97	1.00	1.00	0.95	1.00	1.00			
Frt									
Flt Protected	0.950								
Satd. Flow (prot)	3193	0	0	3324	0	0			
Flt Permitted	0.950								
Satd. Flow (perm)	3193	0	0	3324	0	0			
Right Turn on Red	Yes	Yes				Yes			
Satd. Flow (RTOR)	215								
Link Speed (mph)	30			30	30				
Link Distance (ft)	155			297	139				
Travel Time (s)	3.5			6.8	3.2				
Peak Hour Factor	0.85	0.92	0.92	0.97	0.92	0.92			
Heavy Vehicles (%)	2%	2%	2%	1%	2%	2%			
Adj. Flow (vph)	595	0	0	1138	0	0			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	595	0	0	1138	0	0			
Enter Blocked Intersection	No	No	No	No	No	No			
Lane Alignment	Left	Right	Left	Left	Left	Right			
Median Width(ft)	26	J -		0	0	<u> </u>			
Link Offset(ft)	0			0	0				
Crosswalk Width(ft)	16			16	16				
Two way Left Turn Lane									
Headway Factor	1.10	1.10	1.10	1.10	1.10	1.10			
Turning Speed (mph)	30	9	15			9			
Number of Detectors	1			2					
Detector Template	Left			Thru					
Leading Detector (ft)	20			100					
Trailing Detector (ft)	0			0					
Detector 1 Position(ft)	0			0					
Detector 1 Size(ft)	20			6					
Detector 1 Type	CI+Ex			CI+Ex					
Detector 1 Channel	· ·								
Detector 1 Extend (s)	0.0			0.0					
Detector 1 Queue (s)	0.0			0.0					
Detector 1 Delay (s)	0.0			0.0					
Detector 2 Position(ft)	0.0			94					
Detector 2 Size(ft)				6					
Detector 2 Type				CI+Ex					
Detector 2 Channel				J. 1 LA					
Detector 2 Extend (s)				0.0					
Turn Type	Prot			NA					
Protected Phases	3			2 4			2	4	
Permitted Phases				<u> </u>				т	
Detector Phase	3			2 4					
	<u> </u>			۲ -					

	Ļ	» J	•	\mathbf{x}	*	*			
Lane Group	SBL	SBR	SEL	SET	NWT	NWR	Ø2	Ø4	
Switch Phase									
Minimum Initial (s)	10.0						10.0	10.0	
Minimum Split (s)	19.0						15.0	15.0	
Total Split (s)	36.0						58.0	26.0	
Total Split (%)	30.0%						48%	22%	
Maximum Green (s)	30.0						53.0	21.0	
Yellow Time (s)	4.0						4.0	3.5	
All-Red Time (s)	2.0						1.0	1.5	
Lost Time Adjust (s)	0.0								
Total Lost Time (s)	6.0								
Lead/Lag	Lead							Lag	
Lead-Lag Optimize?									
Vehicle Extension (s)	3.0						3.0	3.0	
Recall Mode	Max						C-Max	Max	
Walk Time (s)	5.0								
Flash Dont Walk (s)	8.0								
Pedestrian Calls (#/hr)	0								
Act Effct Green (s)	30.0			79.0					
Actuated g/C Ratio	0.25			0.66					
v/c Ratio	0.62			0.52					
Control Delay	2.8			11.7					
Queue Delay	1.0			0.0					
Total Delay	3.7			11.7					
LOS	Α			В					
Approach Delay	3.7			11.7					
Approach LOS	Α			В					
Intersection Summary									
Area Type:	CBD								
Cycle Length: 120									
Actuated Cycle Length: 12									
Offset: 16 (13%), Referen	ced to phase	2:WBT, 8	Start of G	reen					
Control Type: Actuated-Co	oordinated								
	Dorumateu								
Maximum v/c Ratio: 1.09 Intersection Signal Delay:	0.0			ln	tersection	1 OC: A			
Intersection Capacity Utiliz						of Service	, D		
Analysis Period (min) 15	Zalion 59.1 /0			ıc	O Level	oi Seivice	; D		
Calita and Disease: 44:	Alousife Dra-1	Dorlans	, 0 Davit-	2					
Splits and Phases: 14: 4 #11 #12 #13 #14	Alewife Brook	raikway	α Roule		#11 #1	2 #13 #	-14		#11 #12 #12 #14
#11 #12 #13 #14	(P.)				#11 #1	, #13 #	14 L Ø3		#11 #12 #13 #14
58 c	(v)				36 c		7 23		26.0

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Lane Group	SBL	SET
Lane Group Flow (vph)	595	1138
v/c Ratio	0.62	0.52
Control Delay	2.8	11.7
Queue Delay	1.0	0.0
Total Delay	3.7	11.7
Queue Length 50th (ft)	5	221
Queue Length 95th (ft)	0	272
Internal Link Dist (ft)	75	217
Turn Bay Length (ft)		
Base Capacity (vph)	959	2188
Starvation Cap Reductn	155	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.74	0.52
Intersection Summary		

	•	→	•	•	—	•	•	†	/	/	ţ	1
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		^			†							
Traffic Volume (vph)	0	625	0	0	1165	0	0	0	0	0	0	0
Future Volume (vph)	0	625	0	0	1165	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	15	16	16	16	12	12	12	12	12	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	2049	0	0	2153	0	0	0	0	0	0	0
FIt Permitted												
Satd. Flow (perm)	0	2049	0	0	2153	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		135			215			175			206	
Travel Time (s)		3.1			4.9			4.0			4.7	
Peak Hour Factor	0.84	0.84	0.84	0.97	0.97	0.97	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	744	0	0	1201	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	744	0	0	1201	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0	, i		0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.88	0.88	0.88	0.85	0.85	0.85	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (ft)		100			100							
Trailing Detector (ft)		0			0							
Detector 1 Position(ft)		0			0							
Detector 1 Size(ft)		6			6							
Detector 1 Type		CI+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		CI+Ex			CI+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			6							
Permitted Phases												
Detector Phase		2			6							

Lane Group Ø9	
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Fit Protected	
Satd. Flow (prot)	
Fit Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases 9	
Permitted Phases	
Detector Phase	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)		4.0			4.0							
Minimum Split (s)		20.5			20.5							
Total Split (s)		47.0			47.0							
Total Split (%)		67.1%			67.1%							
Maximum Green (s)		42.5			42.5							
Yellow Time (s)		3.5			3.5							
All-Red Time (s)		1.0			1.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		4.5			4.5							
Lead/Lag												
Lead-Lag Optimize?		2.0			2.0							
Vehicle Extension (s)		3.0			3.0							
Recall Mode		C-Max			C-Max							
Walk Time (s)												
Flash Dont Walk (s) Pedestrian Calls (#/hr)												
Act Effct Green (s)		47.5			47.5							
Actuated g/C Ratio		0.68			0.68							
v/c Ratio		0.54			0.82							
Control Delay		7.4			17.3							
Queue Delay		53.2			50.3							
Total Delay		60.6			67.7							
LOS		E			E							
Approach Delay		60.6			67.7							
Approach LOS		E			Е							
Intersection Summary												
· · · · · · · · · · · · · · · · · · ·	her											
Cycle Length: 70												
Actuated Cycle Length: 70												
Offset: 16 (23%), Referenced	to phase	2:EBT ar	nd 6:WBT	, Start of	Green							
Natural Cycle: 60												
Control Type: Actuated-Coord	inated											
Maximum v/c Ratio: 0.82						100 5						
Intersection Signal Delay: 65.0					tersection		^					
Intersection Capacity Utilization	n 65.1%			IC	CU Level o	of Service	C					
Analysis Period (min) 15												
Splits and Phases: 36: Minu	ıteman C	ommuter	Bikeway	& Lake S	Street							
→ Ø2 (R)								Å₽ø9				
47 s								23 s				
Ø6 (R)												

Lane Group	Ø9
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	18.0
Total Split (s)	23.0
Total Split (%)	33%
Maximum Green (s)	21.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	311
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

	-	←
	EDT	MOT
Lane Group	EBT	WBT
Lane Group Flow (vph)	744	1201
v/c Ratio	0.54	0.82
Control Delay	7.4	17.3
Queue Delay	53.2	50.3
Total Delay	60.6	67.7
Queue Length 50th (ft)	134	570
Queue Length 95th (ft)	182	m580
Internal Link Dist (ft)	55	135
Turn Bay Length (ft)		
Base Capacity (vph)	1390	1460
Starvation Cap Reductn	0	729
Spillback Cap Reductn	812	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	1.29	1.64
Intersection Summary		

m Volume for 95th percentile queue is metered by upstream signal.

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Volume (vph)	31	548	46	6	1006	0	38	4	5	3	7	121
Future Volume (vph)	31	548	46	6	1006	0	38	4	5	3	7	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	14	13	13	13	12	12	12	12	12	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.990						0.985			0.875	
Flt Protected		0.998						0.961			0.999	
Satd. Flow (prot)	0	1978	0	0	1944	0	0	1799	0	0	1661	0
FIt Permitted		0.919			0.997			0.487			0.993	
Satd. Flow (perm)	0	1821	0	0	1938	0	0	911	0	0	1651	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6						7			155	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		215			1126			206			208	
Travel Time (s)		4.9			25.6			4.7			4.7	
Peak Hour Factor	0.91	0.91	0.91	0.87	0.87	0.87	0.75	0.75	0.75	0.78	0.78	0.78
Heavy Vehicles (%)	0%	1%	5%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	34	602	51	7	1156	0	51	5	7	4	9	155
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	687	0	0	1163	0	0	63	0	0	168	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.92	0.92	0.92	0.96	0.96	0.96	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	0.02	9	15	0.00	9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	Cl+Ex	
Detector 1 Channel	O	O		O/.	O		O	0		O	O	
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	0.0	94		0.0	94		0.0	94		0.0	94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel		OI · EX			OI · EX			OITEX			OI LX	
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	i Gilli	2		i Gilli	6		3	8		i Gilli	4	
Permitted Phases	2			6	U		8	U		4	4	
Detector Phase	2	2		6	6		3	8		4	4	
Detector Friase				O	Ö		ა	0		4	4	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s) Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	• ————————————————————————————————————
Detector Phase	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.5	20.5		20.5	20.5		8.5	14.0		13.0	13.0	
Total Split (s)	27.0	27.0		27.0	27.0		10.0	23.0		13.0	13.0	
Total Split (%)	38.6%	38.6%		38.6%	38.6%		14.3%	32.9%		18.6%	18.6%	
Maximum Green (s)	22.5	22.5		22.5	22.5		5.5	18.5		8.5	8.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		4.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		0.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.5			4.5			4.5			4.5	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	Min		Min	Min	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		40.9			40.9			9.3			9.3	
Actuated g/C Ratio		0.58			0.58			0.13			0.13	
v/c Ratio		0.64			1.03			0.50			0.48	
Control Delay		23.5			56.5			38.1			10.7	
Queue Delay		33.2			30.6			0.0			0.4	
Total Delay		56.7			87.1			38.1			11.2	
LOS		Е			F			D			В	
Approach Delay		56.7			87.1			38.1			11.2	
Approach LOS		E			F			D			В	
Intersection Summary												

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green, Master Intersection

Natural Cycle: 110

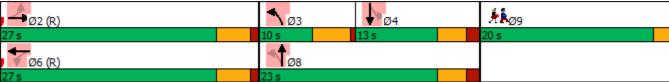
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.03

Intersection Signal Delay: 69.4 Intersection LOS: E Intersection Capacity Utilization 77.5% ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 39: Brooks Avenue & Lake Street



Lane Group	Ø9
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	18.0
Total Split (s)	20.0
Total Split (%)	29%
Maximum Green (s)	18.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	52
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

	→	←	†	Ţ
				_ •
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	687	1163	63	168
v/c Ratio	0.64	1.03	0.50	0.48
Control Delay	23.5	56.5	38.1	10.7
Queue Delay	33.2	30.6	0.0	0.4
Total Delay	56.7	87.1	38.1	11.2
Queue Length 50th (ft)	249	~636	23	5
Queue Length 95th (ft)	#448	#879	44	35
Internal Link Dist (ft)	135	1046	126	128
Turn Bay Length (ft)				
Base Capacity (vph)	1066	1132	245	372
Starvation Cap Reductn	412	0	0	0
Spillback Cap Reductn	0	482	1	38
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.05	1.79	0.26	0.50

Intersection Summary

Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Intersection						
Int Delay, s/veh	0.3					
		EDD	WDI	WOT	ND	NDD
	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	f)	_		ની	¥	
Traffic Vol, veh/h	619	3	1	1202	5	1
Future Vol, veh/h	619	3	1	1202	5	1
Conflicting Peds, #/hr	0	0	0	0	0	0
	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage,	# 0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	87	87	75	75
Heavy Vehicles, %	2	0	0	1	0	0
Mvmt Flow	825	4	1	1382	7	1
	020	•	•	1002	•	•
	ajor1		/lajor2		Minor1	
Conflicting Flow All	0	0	829	0	2211	827
Stage 1	-	-	-	-	827	-
Stage 2	-	-	-	-	1384	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	_	_	_	_	5.4	-
Critical Hdwy Stg 2	-	-	_	_	5.4	-
Follow-up Hdwy	_	_	2.2	_	3.5	3.3
Pot Cap-1 Maneuver	_	_	811	_	49	375
Stage 1	_	_	-	_	433	-
Stage 2			_	_	235	_
Platoon blocked, %	_		_	-	200	_
Mov Cap-1 Maneuver		-	811		49	375
	-	-	011	-	49	
Mov Cap-2 Maneuver	-	-	-	-		-
Stage 1	-	-	-	-	433	-
Stage 2	-	-	-	-	234	-
Approach	EB		WB		NB	
	0		0		78.2	
HCM LOS	U		U		76.2 F	
HCM LOS						
Minor Lane/Major Mvmt	1	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)		57			811	-
HCM Lane V/C Ratio		0.14	_		0.001	_
HCM Control Delay (s)		78.2		_	9.4	0
HCM Lane LOS		70.2 F	_	_	9.4 A	A
HCM 95th %tile Q(veh)		0.5	-	-	0	- -

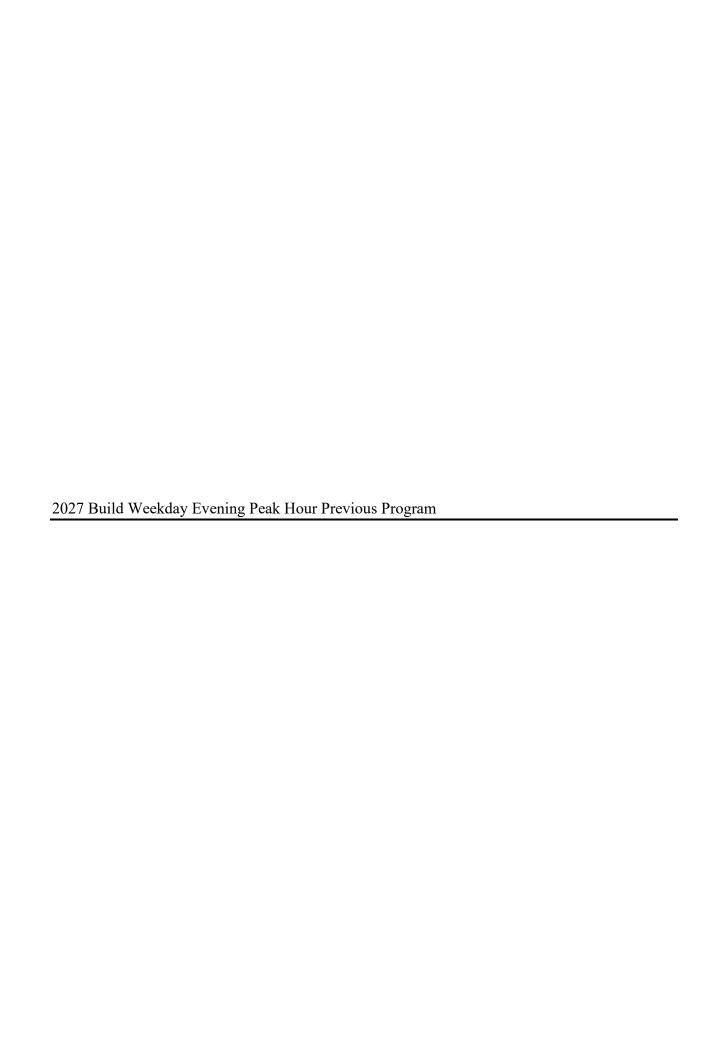
Intersection						
Int Delay, s/veh	4.8					
Movement	EBT	EDD	\\/DI	\\/DT	NBL	NBR
Movement		EBR	WBL	WBT		NDK
Lane Configurations	4	4.4	_	4400	\Y	^
Traffic Vol, veh/h	606	14	5	1166	37	6
Future Vol, veh/h	606	14	5	1166	37	6
Conflicting Peds, #/hr	0	0	0	0	0	0
	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage,	# 0	-	-	0	0	-
Grade, %	0	_	-	0	0	-
Peak Hour Factor	75	75	93	93	75	75
Heavy Vehicles, %	2	0	0	1	0	0
Mymt Flow	808	19	5	1254	49	8
IVIVIII I IOW	000	10	J	1207	73	- 0
Major/Minor Major/Minor	ajor1	<u> </u>	//ajor2		Minor1	
Conflicting Flow All	0	0	827	0	2082	818
Stage 1	-	-	-	-	818	-
Stage 2	_	_	-	_	1264	_
Critical Hdwy		-	4.1	_	6.4	6.2
Critical Hdwy Stg 1	_	_	-	_	5.4	-
Critical Hdwy Stg 1		_	_	_	5.4	_
Follow-up Hdwy		_	2.2	_	3.5	3.3
Pot Cap-1 Maneuver		-	813	-	59	379
•			013		437	
Stage 1	-	-	-	-		-
Stage 2	-	-	-	-	268	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	813	-	58	379
Mov Cap-2 Maneuver	-	-	-	-	58	-
Stage 1	-	-	-	-	437	-
Stage 2	-	-	-	-	263	-
<u> </u>						
A	ED		\A/D		ND	
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		179	
HCM LOS					F	
Minor Lane/Major Mvmt	N	NBLn1	EBT	EBR	WBL	WBT
	l'					
Capacity (veh/h)		66	-	-	813	-
HCM Lane V/C Ratio		0.869	-		0.007	-
HCM Control Delay (s)		179	-	-	9.5	0
HCM Lane LOS		F	-	-	Α	Α
HCM 95th %tile Q(veh)		4.1	_	_	0	_

Intersection						
Int Delay, s/veh	0.5					
		===	14/5	14/5-		
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	٦			र्स	, A	
Traffic Vol, veh/h	602	607	3	1164	7	1
Future Vol, veh/h	602	607	3	1164	7	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage,	# 0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	93	93	75	75
Heavy Vehicles, %	2	0	0	1	0	0
Mvmt Flow	803	809	3	1252	9	1
						•
	ajor1		//ajor2		Minor1	
Conflicting Flow All	0	0	1612	0	2466	1208
Stage 1	-	-	-	-	1208	-
Stage 2	-	-	-	-	1258	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	_	_	2.2	_	3.5	3.3
Pot Cap-1 Maneuver	_	_	410	-	34	225
Stage 1	_	_	-	_	286	-
Stage 2	_	_	_	-	270	_
Platoon blocked, %	_			_	210	
Mov Cap-1 Maneuver	_	_	410		33	225
Mov Cap-1 Maneuver	_	-	410	_	33	- 223
	-	-	-			
Stage 1	-	-	-	-	286	-
Stage 2	-	-	-	-	264	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		137.8	
HCM LOS	U		U		137.6 F	
LICINI FOS					Г	
Minor Lane/Major Mvmt	1	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)		37	_	_	410	-
HCM Lane V/C Ratio		0.288	_		0.008	_
HCM Control Delay (s)		137.8	_	_	13.8	0
HCM Lane LOS		F	_	_	В	A
HCM 95th %tile Q(veh)		0.9	_	_	0	-
HOW JOHN JOHN (VEH)		0.9	_		U	_

Intersection												
Intersection Int Delay, s/veh	1.1											
•												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Vol, veh/h	0	590	18	8	1148	5	8	0	14	4	0	11
Future Vol, veh/h	0	590	18	8	1148	5	8	0	14	4	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage,	# -	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	96	96	96	80	80	80	92	92	92
Heavy Vehicles, %	0	1	0	0	0	0	0	0	10	0	0	0
Mvmt Flow	0	747	23	8	1196	5	10	0	18	4	0	12
<u></u>												
Major/Minor N	1ajor1		N	Major2			Minor1			Minor2		
Conflicting Flow All	1201	0	0	770	0	0	1980	1976	759	1983	1985	1199
Stage 1	1201	-	<u>_</u>		-	-	759	759	139	1215	1215	-
Stage 2		_	_	_	_		1221	1217	_	768	770	_
Critical Hdwy	4.1			4.1		_	7.1	6.5	6.3	7.1	6.5	6.2
Critical Hdwy Stg 1	4.1	_	_	4.1	_	_	6.1	5.5	0.5	6.1	5.5	0.2
Critical Hdwy Stg 2	<u>-</u>	_	<u>-</u>	<u>-</u>	<u>-</u>	_	6.1	5.5	_	6.1	5.5	
Follow-up Hdwy	2.2	_	_	2.2	_	_	3.5	4	3.39	3.5	4	3.3
Pot Cap-1 Maneuver	588	_	-	854	-	_	47	63	394	46	62	228
Stage 1	500	_	_	004	_	_	402	418	J J4	224	256	- 220
Stage 2	-	-	_	<u>-</u>	<u>-</u>	_	222	256	-	397	413	
Platoon blocked, %	_	_	-	_	_	-	222	200	_	331	413	_
Mov Cap-1 Maneuver	588	-	-	854	-	-	44	61	394	43	60	228
Mov Cap-1 Maneuver	-	_	_	054	_	_	44	61	334	43	60	- 220
Stage 1	-	-	-	<u>-</u>	<u>-</u>	_	402	418	-	224	249	
Stage 2	_	_	-	_	_	-	204	249	-	379	413	<u>-</u>
Slaye Z	_	-	_	-	_	_	204	243	_	313	413	_
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			53.5			45		
HCM LOS							F			Е		
Minor Lane/Major Mvmt		NBLn1	EBL	EBT	EBR	WBL	WBT	WBR :	SBLn1			
Capacity (veh/h)		101	588		-	854	-	-	106			
HCM Lane V/C Ratio		0.272	-	_	_	0.01	_		0.154			
HCM Control Delay (s)		53.5	0	_	_	9.3	0	_	45			
HCM Lane LOS		55.5 F	A	-	_	9.3 A	A	_	45 E			
HCM 95th %tile Q(veh)		г 1	A 0	-	-	0	- A	-	0.5			
How som whe Q(ven)			U	-	-	U	-	-	0.5			

Intersection												
Int Delay, s/veh	5.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
	EDL		EDK	WDL		YOR	NDL		NDR	SDL		SDR
Lane Configurations Traffic Vol. veh/h	3	♣ 593	12	26	4	3	9	4	29	3	↔ 0	16
Future Vol, veh/h	3	593	12	26	1136	3	9	0	29	3	0	16
Conflicting Peds, #/hr	0	0	0	304	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	riee	riee -	None	-	-	None	Stop -	Stop -	None	Stop -	Stop -	None
Storage Length	_	-	NOHE	_	-	NOHE	_	_	NOHE	-	_	None
Veh in Median Storage,	# -	0	-		0	_		0			0	<u>-</u>
Grade, %		0	-	_	0	_	_	0	_	_	0	_
Peak Hour Factor	84	84	84	97	97	97	75	75	75	75	75	75
Heavy Vehicles, %	0	2	04	0	0	0	0	0	0	0	0	0
Mymt Flow	4	706	14	27	1171	3	12	0	39	4	0	21
IVIVIIIL I IOW	7	700	17	LI	1171	- 0	12	- 0	00	7	U	Z 1
	/lajor1			Major2			Minor1			Minor2		
Conflicting Flow All	1174	0	0	1024	0	0	2262	2253	1017	1968	2259	1173
Stage 1	-	-	-	-	-	-	1025	1025	-	1227	1227	-
Stage 2	-	-	-	-	-	-	1237	1228	-	741	1032	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	602	-	-	686	-	-	29	42	291	48	42	236
Stage 1	-	-	-	-	-	-	286	315	-	220	253	-
Stage 2	-	-	-	-	-	-	217	253	-	411	313	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	602	-	-	512	-	-	17	26	217	35	26	236
Mov Cap-2 Maneuver	-	-	-	-	-	-	17	26	-	35	26	-
Stage 1	-	-	-	-	-	-	211	233	-	218	215	-
Stage 2	-	-	-	-	-	-	167	215	-	334	231	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.3			204.1			41.3		
HCM LOS							F			E		
										_		
Minor Lane/Major Mvmt	t	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR :	SBLn1			
Capacity (veh/h)		57	602			512	-	-	124			
HCM Lane V/C Ratio		0.889	0.006	<u>-</u>		0.052	_		0.204			
HCM Control Delay (s)		204.1	11	0		12.4	0	_				
HCM Lane LOS		204.1	В	A	_	12. 4	A	_	+1.5			
HCM 95th %tile Q(veh)		4	0	-	_	0.2	-	_	0.7			
HOW JOHN JUNIO Q(VEII)			U			J.Z			0.1			

	•	→	+	4	/	4
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4	4		W	
Traffic Volume (veh/h)	13	7	7	30	19	0
Future Volume (Veh/h)	13	7	7	30	19	0
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	8	8	33	21	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)					INOLIC	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	79	42	42	0	0	
vC1, stage 1 conf vol	19	42	42	U	U	
vC2, stage 2 conf vol						
vCu, unblocked vol	79	42	42	0	0	
	7.1	6.5	6.5	6.2	4.1	
tC, single (s)	7.1	0.0	0.0	0.2	4.1	
tC, 2 stage (s)	2.5	4.0	4.0	2.2	0.0	
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	98	99	99	97	99	
cM capacity (veh/h)	872	843	843	1091	1636	
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	22	41	21			
Volume Left	14	0	21			
Volume Right	0	33	0			
cSH	861	1032	1636			
Volume to Capacity	0.03	0.04	0.01			
Queue Length 95th (ft)	2	3	1			
Control Delay (s)	9.3	8.6	7.2			
Lane LOS	Α	Α	Α			
Approach Delay (s)	9.3	8.6	7.2			
Approach LOS	Α	Α				
Intersection Summary						
Average Delay			8.5			
Intersection Capacity Utilizat	tion		17.8%	IC	U Level	of Service
Analysis Period (min)			15		,,,,,	



	>	74	×	4	*	×		
Lane Group	EBL	EBR	SET	SER	NWL	NWT	Ø9	
Lane Configurations	<u> </u>	7	↑ ↑	7	ሻ	<u> </u>		
Traffic Volume (vph)	432	280	658	192	352	739		
Future Volume (vph)	432	280	658	192	352	739		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	1900	1900	1900	1900	1900	1900		
. ,	0	100	11	55	150	12		
Storage Length (ft)	1	100		1	150			
Storage Lanes	25	l		ı	25			
Taper Length (ft)		1.00	0.05	1.00		1.00		
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	1.00		
Frt	0.050	0.850		0.850	0.050			
Flt Protected	0.950	4000	0.404	4507	0.950	4000		
Satd. Flow (prot)	2046	1830	3421	1507	1745	1863		
Flt Permitted	0.950	4000	0.404	4505	0.220	4000		
Satd. Flow (perm)	2046	1830	3421	1507	404	1863		
Right Turn on Red		Yes		Yes				
Satd. Flow (RTOR)		140		87				
Link Speed (mph)	30		30			30		
Link Distance (ft)	1126		640			645		
Travel Time (s)	25.6		14.5			14.7		
Peak Hour Factor	0.88	0.88	0.92	0.92	0.92	0.92		
Heavy Vehicles (%)	0%	0%	2%	0%	0%	2%		
Adj. Flow (vph)	491	318	715	209	383	803		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	491	318	715	209	383	803		
Enter Blocked Intersection	No	No	No	No	No	No		
Lane Alignment	Left	Right	Left	Right	Left	Left		
Median Width(ft)	16		11			11		
Link Offset(ft)	0		0			0		
Crosswalk Width(ft)	16		16			16		
Two way Left Turn Lane								
Headway Factor	0.85	0.85	1.04	1.09	1.04	1.00		
Turning Speed (mph)	15	9		9	15			
Number of Detectors	1	1	2	1	1	2		
Detector Template	Left	Right	Thru	Right	Left	Thru		
Leading Detector (ft)	20	20	100	20	20	100		
Trailing Detector (ft)	0	0	0	0	0	0		
Detector 1 Position(ft)	0	0	0	0	0	0		
Detector 1 Size(ft)	20	20	6	20	20	6		
Detector 1 Type	CI+Ex	Cl+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		
Detector 1 Channel	51 · LX	51 · LA	JI-LA	Ο1 · LΛ	01 · LA	JI-LA		
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 2 Position(ft)	0.0	0.0	94	0.0	0.0	94		
Detector 2 Size(ft)			6			6		
` '			CI+Ex			CI+Ex		
Detector 2 Type Detector 2 Channel			OI+EX			OI+EX		
			0.0			0.0		
Detector 2 Extend (s)	Dest	Dema		Dem	n.m. :4			
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA		

	>	-	\mathbf{x}	4	*	×		
Lane Group	EBL	EBR	SET	SER	NWL	NWT	Ø9	
Protected Phases	4		6		5	2	9	
Permitted Phases		4		6	2			
Detector Phase	4	4	6	6	5	2		
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	23.0	23.0	23.0	23.0	10.0	23.0	19.0	
Total Split (s)	29.0	29.0	38.0	38.0	15.0	53.0	23.0	
Total Split (%)	27.6%	27.6%	36.2%	36.2%	14.3%	50.5%	22%	
Maximum Green (s)	22.0	22.0	31.0	31.0	9.0	46.0	20.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	4.0	2.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	7.0	7.0	7.0	7.0	6.0	7.0		
Lead/Lag			Lag	Lag	Lead			
Lead-Lag Optimize?			Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	Max	Max	None	Max	None	
Walk Time (s)							5.0	
Flash Dont Walk (s)							11.0	
Pedestrian Calls (#/hr)							35	
Act Effct Green (s)	22.2	22.2	31.3	31.3	47.5	46.5		
Actuated g/C Ratio	0.24	0.24	0.34	0.34	0.51	0.50		
v/c Ratio	1.01	0.59	0.62	0.37	1.14	0.87		
Control Delay	81.8	23.6	30.4	17.2	116.1	34.8		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	81.8	23.6	30.4	17.2	116.1	34.8		
LOS	F	С	С	В	F	С		
Approach Delay	58.9		27.4			61.1		
Approach LOS	E		С			Е		
Intersection Summary								
Area Type:	Other							
Cycle Length: 105								
Actuated Cycle Length: 93.4	4							
Natural Cycle: 100								
Control Type: Actuated-Und	coordinated							
Maximum v/c Ratio: 1.14								
Intersection Signal Delay: 4	9.8			Ir	ntersection	n LOS: D		
Intersection Capacity Utiliza)				of Service	D D	
Analysis Period (min) 15								
Splits and Phases: 2: Ma	ssachusett	s Aevnue	/Massact	nusetts Av	/enue & l	ake Stree	it.	
★	33aGHU3EH	o Actine	riviassaci	iusells A	₩		,,	1.5
					70	Ø4		# k ø9

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	>	-	\mathbf{x}	4	*	×
Lane Group	EBL	EBR	SET	SER	NWL	NWT
Lane Group Flow (vph)	491	318	715	209	383	803
v/c Ratio	1.01	0.59	0.62	0.37	1.14	0.87
Control Delay	81.8	23.6	30.4	17.2	116.1	34.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.8	23.6	30.4	17.2	116.1	34.8
Queue Length 50th (ft)	~362	102	211	59	~224	480
Queue Length 95th (ft)	#541	188	277	124	#433	#740
Internal Link Dist (ft)	1046		560			565
Turn Bay Length (ft)		100		55	150	
Base Capacity (vph)	486	542	1147	562	335	927
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.59	0.62	0.37	1.14	0.87

Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

-	•	•	←	₹ 1	4	/
FRT	EBR	WRI	WRT	NBU	NRI	NBR
				NBO		7
				14		641
						641
						1900
						14
10				12		0
						1
	ı					'
1 00	1 00		n 95	1 00		1.00
1.00		1.00	0.33	1.00	1.00	0.850
	0.000	0.950			0.050	0.000
2153	1664		3490	0		1723
2100	1004		J -1 30	U		1720
2152	1664		3/100	0		1723
2100		1002	3490	U	2040	Yes
						448
20	70		20		20	440
	0.04	0.07		0.06		0.96
						0.96
502	193	196	340	15	ეეკ	668
E00	400	400	240	0	FC0	000
						668
						No
	Right	Left		RINA		Right
16			16		16	
0.05	0.05	4.00	4.04	4.00	0.05	0.00
0.85			1.04			0.92
						9
						1
						Right
						20
						0
				0		0
						20
CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0
94			94			
6			6			
CI+Ex			CI+Ex			
0.0			0.0			
NA	Free	Prot	NA	Perm	Prot	Perm
	0.0 0.0 0.0 94 6 CI+Ex	547 181 547 181 1900 1900 16 16 150 1 1.00 1.00 0.850 2153 1664 2153 1664 Yes 70 30 239 5.4 0.94 0.94 0% 10% 582 193 No No Left Right 12 0 16 0.85 0.85 9 2 1 Thru Right 100 20 0 0 0 0 0 0 6 20 Cl+Ex Cl+Ex 0.0 0.0 0.0 0.0 94 6 Cl+Ex	\$ 181	\$ 181	EBT EBR WBL WBT NBU	EBT EBR WBL WBT NBU NBL 547 181 172 303 14 531 547 181 172 303 14 531 1900 1900 1900 1900 1900 1900 16 16 10 11 12 16 150 110 0 0 1 1 1 1 1 25 25 25 1.00 1.00 1.00 0.95 1.00 1.00 0.850 0.950 0.950 2153 1664 1652 3490 0 2046 Yes 70 30 30 30 30 30 239 505 387 5.4 11.5 8.8 0.94 0.94 0.87 0.87 0.96 0.96 0% 10% 2% 0% 0% 0% 0% 582 193 198 348 15 553 582 193 198 348 15 553 582 193 198 348 0 568 No No No No No No No No Left Right Left Left RNA Left 12 12 16 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

	→	\rightarrow	•	←	₹I	1	/
Lane Group	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Protected Phases	4		3	8		2	
Permitted Phases		Free			2		2
Detector Phase	4		3	8	2	2	2
Switch Phase							
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0		9.0	21.0	21.0	21.0	21.0
Total Split (s)	74.0		25.0	99.0	21.0	21.0	21.0
Total Split (%)	61.7%		20.8%	82.5%	17.5%	17.5%	17.5%
Maximum Green (s)	69.0		20.0	94.0	16.0	16.0	16.0
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0		5.0	5.0		5.0	5.0
Lead/Lag	Lag		Lead				
Lead-Lag Optimize?	Yes		Yes				
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0
Recall Mode	None		None	None	Max	Max	Max
Walk Time (s)	5.0			5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0			11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0	0
Act Effct Green (s)	25.8	71.6	14.1	45.0		16.3	16.3
Actuated g/C Ratio	0.36	1.00	0.20	0.63		0.23	0.23
v/c Ratio	0.75	0.12	0.61	0.16		1.22	0.90
Control Delay	27.0	0.1	36.2	5.3		145.5	28.7
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	27.0	0.1	36.2	5.3		145.5	28.7
LOS	С	Α	D	Α		F	С
Approach Delay	20.3			16.5		82.4	
Approach LOS	С			В		F	
Intersection Summary							

Area Type: Other

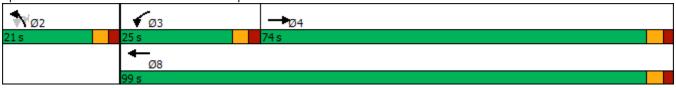
Cycle Length: 120 Actuated Cycle Length: 71.6 Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.22
Intersection Signal Delay: 49.5
Intersection Capacity Utilization 81.0%
Analysis Period (min) 15

Intersection LOS: D
ICU Level of Service D

Splits and Phases: 5: Route 2 EB On/Off Ramps & Lake Street



	-	•	•	•	1	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	582	193	198	348	568	668
v/c Ratio	0.75	0.12	0.61	0.16	1.22	0.90
Control Delay	27.0	0.1	36.2	5.3	145.5	28.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.0	0.1	36.2	5.3	145.5	28.7
Queue Length 50th (ft)	216	0	80	28	~316	93
Queue Length 95th (ft)	362	0	157	40	#635	#368
Internal Link Dist (ft)	159			425	307	
Turn Bay Length (ft)		150	110			
Base Capacity (vph)	1999	1664	471	3490	467	739
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.12	0.42	0.10	1.22	0.90

Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Lane Group EBL EBT EBR WBL WBT WBR SEL SET SER NWL NWT NW Lane Configurations 1 <
Lane Configurations Traffic Volume (vph) 368 820 0 0 267 352 0 0 0 208 22 22 Future Volume (vph) 368 820 0 0 267 352 0 0 0 208 22 2 Ideal Flow (vphpl) 1900
Traffic Volume (vph) 368 820 0 0 267 352 0 0 0 208 22 2 Future Volume (vph) 368 820 0 0 267 352 0 0 0 208 22 2 Ideal Flow (vphpl) 1900 19
Future Volume (vph) 368 820 0 0 267 352 0 0 0 208 22 22 Ideal Flow (vphpl) 1900 <
Ideal Flow (vphpl) 1900 1
Lane Width (ft) 12 12 12 11 10 12 12 11 12 11 12 11 Storage Length (ft) 250 0 0 75 0 0 100
Storage Length (ft) 250 0 0 75 0 0 100
Storage Lanes 1 0 0 1 0 0 1
Taper Length (ft) 25 25 25 25
Lane Util. Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0
Frt 0.850 0.85
Flt Protected 0.950 0.961
Satd. Flow (prot) 1805 1881 0 0 1801 1463 0 0 0 1641 1705 183
Flt Permitted 0.950 0.961
Satd. Flow (perm) 1805 1881 0 0 1801 1463 0 0 1641 1705 183
Right Turn on Red Yes Yes Yes Yes
Satd. Flow (RTOR) 387
Link Speed (mph) 30 30 30 30
Link Distance (ff) 505 380 459 529
Travel Time (s) 11.5 8.6 10.4 12.0
Peak Hour Factor 0.88 0.88 0.81 0.91 0.91 0.92 0.92 0.92 0.95 0.95 0.95
Heavy Vehicles (%) 0% 1% 0% 0% 2% 3% 0% 0% 0% 1% 5% 0.55
Adj. Flow (vph) 418 932 0 0 293 387 0 0 0 219 23 2
Shared Lane Traffic (%) 45%
Lane Group Flow (vph) 418 932 0 0 293 387 0 0 120 122 2
Enter Blocked Intersection No
Lane Alignment Left Left Right Right Left Right R
Median Width(ft) 12 13 14 15 16 17 18 18 18 18 18 18 18 18 18
Link Offset(ft) 0 0 0 0
Crosswalk Width(ft) 16 16 16 16
Two way Left Turn Lane
Headway Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0
Turning Speed (mph) 15 9 15 9 15
Number of Detectors 1 2 2 1 1 2
Detector Template Left Thru Thru Right Left Thru Rig
Leading Detector (ft) 20 100 100 20 20 100 2
Trailing Detector (ft) 0 0 0 0 0
Detector 1 Position(ft) 0 0 0 0 0
Detector 1 Size(ft) 20 6 6 20 20 6 2
Detector 1 Type CI+Ex CI
Detector 1 Channel
Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.
Detector 2 Position(ft) 94 94 94
Detector 2 Size(ft) 6 6
Detector 2 Type CI+Ex CI+Ex CI+Ex
Detector 2 Channel
Detector 2 Extend (s) 0.0 0.0 0.0
Turn Type Prot NA NA Perm Split NA Per

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Protected Phases	7	4			8					2	2	
Permitted Phases						8						2
Detector Phase	7	4			8	8				2	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0			4.0	4.0				4.0	4.0	4.0
Minimum Split (s)	8.5	22.0			22.0	22.0				22.0	22.0	22.0
Total Split (s)	16.0	38.0			22.0	22.0				22.0	22.0	22.0
Total Split (%)	26.7%	63.3%			36.7%	36.7%				36.7%	36.7%	36.7%
Maximum Green (s)	11.5	32.0			16.0	16.0				16.0	16.0	16.0
Yellow Time (s)	4.0	4.0			4.0	4.0				4.0	4.0	4.0
All-Red Time (s)	0.5	2.0			2.0	2.0				2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0				0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0			6.0	6.0				6.0	6.0	6.0
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Vehicle Extension (s)	3.0	3.0			3.0	3.0				3.0	3.0	3.0
Recall Mode	None	None			None	None				Max	Max	Max
Walk Time (s)		5.0			5.0	5.0				5.0	5.0	5.0
Flash Dont Walk (s)		11.0			11.0	11.0				11.0	11.0	11.0
Pedestrian Calls (#/hr)		0			0	0				0	0	0
Act Effct Green (s)	11.5	31.0			14.9	14.9				16.0	16.0	16.0
Actuated g/C Ratio	0.19	0.53			0.25	0.25				0.27	0.27	0.27
v/c Ratio	1.19	0.94			0.64	0.59				0.27	0.26	0.05
Control Delay	137.1	33.8			26.9	6.5				19.4	19.3	0.1
Queue Delay	0.0	0.0			0.0	0.0				0.0	0.0	0.0
Total Delay	137.1	33.8			26.9	6.5				19.4	19.3	0.1
LOS	F	С			С	Α				В	В	Α
Approach Delay		65.8			15.3						17.4	
Approach LOS		Е			В						В	
Intersection Summary												
Area Type:	Other											
Cycle Length: 60												
Actuated Cycle Length: 59)											
Natural Cycle: 65												
Control Type: Actuated-Ur	ncoordinated											
Maximum v/c Ratio: 1.19												
Intersection Signal Delay:					ntersectio							
Intersection Capacity Utiliz	zation 62.3%)		IC	CU Level	of Service	В					
Analysis Period (min) 15												

Splits and Phases: 7: Route 2 WB Off Ramp & Lake Street



	>	→	←	*_	*	×	4
Lane Group	EBL	EBT	WBT	WBR	NWL	NWT	NWR
Lane Group Flow (vph)	418	932	293	387	120	122	28
v/c Ratio	1.19	0.94	0.64	0.59	0.27	0.26	0.05
Control Delay	137.1	33.8	26.9	6.5	19.4	19.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	137.1	33.8	26.9	6.5	19.4	19.3	0.1
Queue Length 50th (ft)	~191	283	93	0	35	36	0
Queue Length 95th (ft)	#331	#514	163	57	75	76	0
Internal Link Dist (ft)		425	300			449	
Turn Bay Length (ft)	250			75	100		
Base Capacity (vph)	352	1022	489	678	445	462	595
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.19	0.91	0.60	0.57	0.27	0.26	0.05

Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

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	#	-	←	€	6	~				
Lane Group	EBL	EBT	WBT	WBR	SWL	SWR	Ø3	Ø4		
Lane Configurations			^ ^			77				
Traffic Volume (vph)	0	0	2211	0	0	1131				
Future Volume (vph)	0	0	2211	0	0	1131				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900				
Lane Width (ft)	13	13	13	13	13	13				
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.88				
Frt						0.850				
Flt Protected										
Satd. Flow (prot)	0	0	4776	0	0	2617				
Flt Permitted										
Satd. Flow (perm)	0	0	4776	0	0	2617				
Right Turn on Red				Yes		Yes				
Satd. Flow (RTOR)						1				
Link Speed (mph)		30	30		30					
Link Distance (ft)		201	192		296					
Travel Time (s)		4.6	4.4		6.7					
Peak Hour Factor	0.92	0.92	0.97	0.97	0.98	0.98				
Heavy Vehicles (%)	2%	2%	1%	0%	0%	1%				
Adj. Flow (vph)	0	0	2279	0	0	1154				
Shared Lane Traffic (%)										
Lane Group Flow (vph)	0	0	2279	0	0	1154				
Enter Blocked Intersection	No	No	No	No	No	No				
Lane Alignment	Left	Left	Left	Right	Left	Right				
Median Width(ft)	2010	0	0	rugiit	0	. ugut				
Link Offset(ft)		0	0		0					
Crosswalk Width(ft)		16	16		16					
Two way Left Turn Lane			10							
Headway Factor	1.10	1.10	1.10	1.10	1.10	1.10				
Turning Speed (mph)	15	11.10	11.10	9	15	30				
Number of Detectors	10		2		10	1				
Detector Template			Thru			Right				
Leading Detector (ft)			100			20				
Trailing Detector (ft)			0			0				
Detector 1 Position(ft)			0			0				
Detector 1 Size(ft)			6			20				
Detector 1 Type			CI+Ex			CI+Ex				
Detector 1 Channel			OITEX			OI · LX				
Detector 1 Extend (s)			0.0			0.0				
Detector 1 Queue (s)			0.0			0.0				
Detector 1 Delay (s)			0.0			0.0				
Detector 2 Position(ft)			94			0.0				
Detector 2 Size(ft)			6							
Detector 2 Type			Cl+Ex							
Detector 2 Type Detector 2 Channel			OITEX							
Detector 2 Extend (s)			0.0							
Turn Type			NA			custom				
Protected Phases			2			3 4	3	4		
Permitted Phases						J 4	J	7		
Detector Phase			2			3 4				
- Indicate in the second of th						U T				

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Lane Group	EBL	EBT	WBT	WBR	SWL	SWR	Ø3	Ø4	
Switch Phase									
Minimum Initial (s)			10.0				10.0	10.0	
Minimum Split (s)			15.0				19.0	15.0	
Total Split (s)			58.0				36.0	26.0	
Total Split (%)			48.3%				30%	22%	
Maximum Green (s)			53.0				30.0	21.0	
Yellow Time (s)			4.0				4.0	3.5	
All-Red Time (s)			1.0				2.0	1.5	
Lost Time Adjust (s)			0.0						
Total Lost Time (s)			5.0						
Lead/Lag							Lead	Lag	
Lead-Lag Optimize?								- J	
Vehicle Extension (s)			3.0				3.0	3.0	
Recall Mode			C-Max				Max	Max	
Walk Time (s)							5.0		
Flash Dont Walk (s)							8.0		
Pedestrian Calls (#/hr)							0		
Act Effct Green (s)			53.0			56.0			
Actuated g/C Ratio			0.44			0.47			
v/c Ratio			1.08			0.95			
Control Delay			47.1			46.7			
Queue Delay			1.5			0.0			
Total Delay			48.7			46.7			
LOS			D			D			
Approach Delay			48.7		46.7				
Approach LOS			D		D				
Intersection Summary									
Area Type: CE	3D								
Cycle Length: 120									
Actuated Cycle Length: 120									
Offset: 16 (13%), Referenced	to phase:	2:WBT, \$	Start of G	reen					
Natural Cycle: 140									
Control Type: Actuated-Coord	inated								
Maximum v/c Ratio: 1.19									
Intersection Signal Delay: 48.0					itersection				
Intersection Capacity Utilizatio	n 100.6%)		IC	CU Level o	of Service	G		
Analysis Period (min) 15									
Splits and Phases: 11: Rout	te 2/Alewi	fe Brook	Parkway	& Route	16				
#11 #12 #13 #14						2 #13 #	14		#11 #12 #13 #14
← ↑ ♣ 🛕 Ø2 (R)					*]	†	Ø3		4 ✓ 4 ✓ 0 4
₹ Ø2 (R)					26.0		~ W3		204



	WDT	CIMID
Lane Group	WBT	SWR
Lane Group Flow (vph)	2279	1154
v/c Ratio	1.08	0.95
Control Delay	47.1	46.7
Queue Delay	1.5	0.0
Total Delay	48.7	46.7
Queue Length 50th (ft)	~704	472
Queue Length 95th (ft)	m#56	#644
Internal Link Dist (ft)	112	
Turn Bay Length (ft)		
Base Capacity (vph)	2109	1221
Starvation Cap Reductn	7	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	1.08	0.95

Queue shown is maximum after two cycles.

Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

m Volume for 95th percentile queue is metered by upstream signal.

	#	*	ļ	*
Lane Group	EBL	WBR	SBT	NWT
Lane Configurations	ሻሻ	7	^	^
Traffic Volume (vph)	610	591	250	1620
Future Volume (vph)	610	591	250	1620
Ideal Flow (vphpl)	1900	1900	1900	1900
Lane Width (ft)	13	16	13	13
Lane Util. Factor	0.97	1.00	0.95	0.95
Frt		0.865		
Flt Protected	0.950			
Satd. Flow (prot)	3257	1660	3291	3324
Flt Permitted	0.950			
Satd. Flow (perm)	3257	1660	3291	3324
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)			30	30
Link Distance (ft)			202	278
Travel Time (s)			4.6	6.3
\(\frac{1}{2}\)	0.90	0.05		0.97
Peak Hour Factor		0.95	0.98	
Heavy Vehicles (%)	0%	1%	2%	1%
Adj. Flow (vph)	678	622	255	1670
Shared Lane Traffic (%)				
Lane Group Flow (vph)	678	622	255	1670
Enter Blocked Intersection	No	No	No	No
Lane Alignment	Left	R NA	Left	L NA
Median Width(ft)			0	0
Link Offset(ft)			0	0
Crosswalk Width(ft)			16	16
Two way Left Turn Lane				
Headway Factor	1.10	0.97	1.10	1.10
Turning Speed (mph)	1.10	30	1.10	1.10
Number of Detectors	1	1	2	2
		•		
Detector Template	Left	Right	Thru	Thru
Leading Detector (ft)	20	20	100	100
Trailing Detector (ft)	0	0	0	0
Detector 1 Position(ft)	0	0	0	0
Detector 1 Size(ft)	20	20	6	6
Detector 1 Type	Cl+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel				
Detector 1 Extend (s)	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	0.0	0.0	94	94
` '			6	6
Detector 2 Size(ft)				
Detector 2 Type			Cl+Ex	Cl+Ex
Detector 2 Channel				
Detector 2 Extend (s)			0.0	0.0
Turn Type	Prot	Prot	NA	NA
Protected Phases	4	2!	3	2!
Permitted Phases				
i omittoa i nacco				

	#	*	Ţ	×
Lane Group	EBL	WBR	SBT	NWT
Switch Phase				
Minimum Initial (s)	10.0	10.0	10.0	10.0
Minimum Split (s)	15.0	15.0	19.0	15.0
Total Split (s)	26.0	58.0	36.0	58.0
Total Split (%)	21.7%	48.3%	30.0%	48.3%
Maximum Green (s)	21.0	53.0	30.0	53.0
Yellow Time (s)	3.5	4.0	4.0	4.0
All-Red Time (s)	1.5	1.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	5.0
Lead/Lag	Lag		Lead	
Lead-Lag Optimize?				
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	Max	C-Max	Max	C-Max
Walk Time (s)			5.0	
Flash Dont Walk (s)			8.0	
Pedestrian Calls (#/hr)			0	
Act Effct Green (s)	21.0	53.0	30.0	53.0
Actuated g/C Ratio	0.18	0.44	0.25	0.44
v/c Ratio	1.19	0.85	0.31	1.14
Control Delay	145.7	29.8	37.8	103.1
Queue Delay	0.0	3.3	0.0	0.3
Total Delay	145.7	33.1	37.8	103.3
LOS	F	С	D	F
Approach Delay			37.8	103.3
Approach LOS			D	F
Intersection Summary				
Area Type:	CBD			
Cycle Length: 120				
Actuated Cycle Length: 12	20			

Offset: 16 (13%), Referenced to phase 2:WBT, Start of Green

Natural Cycle: 140

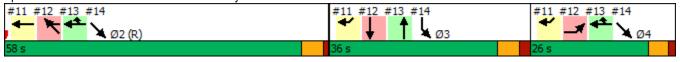
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.19

Intersection Signal Delay: 93.5 Intersection LOS: F Intersection Capacity Utilization 134.8% ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 12: Alewife Brook Parkway & Route 2



[!] Phase conflict between lane groups.

	#	*	↓	×
Lane Group	EBL	WBR	SBT	NWT
Lane Group Flow (vph)	678	622	255	1670
v/c Ratio	1.19	0.85	0.31	1.14
Control Delay	145.7	29.8	37.8	103.1
Queue Delay	0.0	3.3	0.0	0.3
Total Delay	145.7	33.1	37.8	103.3
Queue Length 50th (ft)	~326	422	84	~794
Queue Length 95th (ft)	#446	#639	123	#933
Internal Link Dist (ft)			122	198
Turn Bay Length (ft)				
Base Capacity (vph)	569	733	822	1468
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	53	0	107
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.19	0.91	0.31	1.23

Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

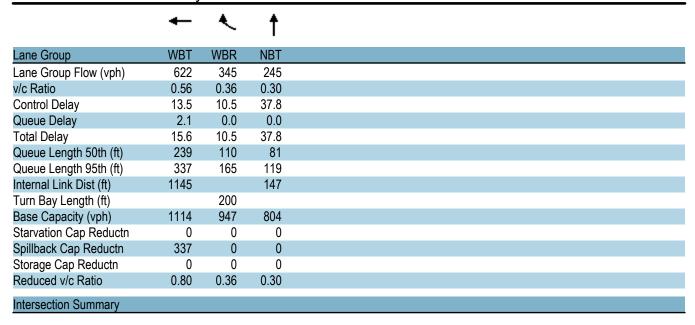
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					^	7		^				
Traffic Volume (vph)	0	0	0	0	591	328	0	238	0	0	0	0
Future Volume (vph)	0	0	0	0	591	328	0	238	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		200	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25		-	25		-	25			25		•
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor								0.00				
Frt						0.850						
Flt Protected						0.000						
Satd. Flow (prot)	0	0	0	0	1693	1439	0	3217	0	0	0	0
Flt Permitted	· ·		· ·	· ·	1000	1 100		0211		· ·		•
Satd. Flow (perm)	0	0	0	0	1693	1439	0	3217	0	0	0	0
Right Turn on Red	· ·	•	No	J	1000	No	No	0211	No	· ·	J	No
Satd. Flow (RTOR)			110			110	110		110			110
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		161			1225			227			185	
Travel Time (s)		3.7			27.8			5.2			4.2	
Confl. Peds. (#/hr)		0.1			21.0	2		0.2			7.∠	
Peak Hour Factor	0.92	0.92	0.92	0.95	0.95	0.95	0.97	0.97	0.97	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	0.33	1%	1%	0.57	1%	0%	2%	2%	2%
Adj. Flow (vph)	0	0	0	0 /0	622	345	0	245	0	0	0	0
Shared Lane Traffic (%)	U	- U	U	U	022	040	U	240	U	U	U	U
Lane Group Flow (vph)	0	0	0	0	622	345	0	245	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	LOIL	0	rtigiit	Lon	0	rtigrit	LOIL	0	ragnt	LOIL	0	rtigrit
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		10			10			10			10	
Headway Factor	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
Turning Speed (mph)	1.14	1.14	9	1.14	1.14	9	15	1.14	9	1.14	1.14	9
Number of Detectors	13		9	13	2	1	10	2	9	10		9
Detector Template					Thru	Right		Thru				
Leading Detector (ft)					100	20		100				
Trailing Detector (ft)					0	0		0				
Detector 1 Position(ft)					0	0		0				
Detector 1 Size(ft)					6	20		6				
					Cl+Ex	CI+Ex		CI+Ex				
Detector 1 Type Detector 1 Channel					UI+⊑X	UI+EX		CI+EX				
					0.0	0.0		0.0				
Detector 1 Extend (s) Detector 1 Queue (s)					0.0	0.0		0.0				
Detector 1 Delay (s)					0.0	0.0		0.0				
Detector 2 Position(ft)					94			94				
Detector 2 Size(ft)					6 CL Ev			6				
Detector 2 Type					Cl+Ex			Cl+Ex				
Detector 2 Channel					2.2			0.0				
Detector 2 Extend (s)					0.0			0.0				

Lane Group	Ø2	Ø4
Lane Configurations	WL.	VT
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Number of Detectors		
Detector Template		
Leading Detector (ft)		
Trailing Detector (ft)		
Detector 1 Position(ft)		
Detector 1 Size(ft)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(ft)		
Detector 2 Size(ft)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type					NA	Prot		NA				
Protected Phases					24	2 4		3				
Permitted Phases												
Detector Phase					2 4	2 4		3				
Switch Phase												
Minimum Initial (s)								10.0				
Minimum Split (s)								19.0				
Total Split (s)								36.0				
Total Split (%)								30.0%				
Maximum Green (s)								30.0				
Yellow Time (s)								4.0				
All-Red Time (s)								2.0				
Lost Time Adjust (s)								0.0				
Total Lost Time (s)								6.0				
Lead/Lag								Lead				
Lead-Lag Optimize?								Loud				
Vehicle Extension (s)								3.0				
Recall Mode								Max				
Walk Time (s)								5.0				
Flash Dont Walk (s)								8.0				
Pedestrian Calls (#/hr)								0.0				
Act Effct Green (s)					79.0	79.0		30.0				
Actuated g/C Ratio					0.66	0.66		0.25				
v/c Ratio					0.56	0.36		0.23				
Control Delay					13.5	10.5		37.8				
•					2.1	0.0		0.0				
Queue Delay					15.6	10.5		37.8				
Total Delay					15.0 B			37.0 D				
LOS						В						
Approach Delay					13.8			37.8				
Approach LOS					В			D				
Intersection Summary												
	CBD											
Cycle Length: 120												
Actuated Cycle Length: 120												
Offset: 16 (13%), Referenced	d to phase	2:WBT, \$	Start of G	reen								
Natural Cycle: 140												
Control Type: Actuated-Coor	dinated											
Maximum v/c Ratio: 1.19												
Intersection Signal Delay: 18	3.6			Ir	ntersection	LOS: B						
Intersection Capacity Utilizat	ion 52.1%			IC	CU Level o	of Service	Α					
Analysis Period (min) 15												_
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Splits and Phases: 13: Alewife Brook Parkway & Route 2/Rt 2 WB Access

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Lane Group	Ø2	Ø4
Turn Type		
Protected Phases	2	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	10.0	10.0
Minimum Split (s)	15.0	15.0
Total Split (s)	58.0	26.0
Total Split (%)	48%	22%
Maximum Green (s)	53.0	21.0
Yellow Time (s)	4.0	3.5
All-Red Time (s)	1.0	1.5
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		Lag
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	3.0
Recall Mode	C-Max	Max
Walk Time (s)		
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Cummers		
Intersection Summary		



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Lane Group	SBL	SBR	SEL	SET	NWT	NWR	Ø2	Ø4	
Lane Configurations	14.54			^					
Traffic Volume (vph)	250	0	0	988	0	0			
Future Volume (vph)	250	0	0	988	0	0			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Lane Width (ft)	13	13	13	13	13	13			
Lane Util. Factor	0.97	1.00	1.00	0.95	1.00	1.00			
Frt									
Flt Protected	0.950								
Satd. Flow (prot)	3193	0	0	3324	0	0			
Flt Permitted	0.950								
Satd. Flow (perm)	3193	0	0	3324	0	0			
Right Turn on Red	Yes	Yes				Yes			
Satd. Flow (RTOR)	234								
Link Speed (mph)	30			30	30				
Link Distance (ft)	155			297	139				
Travel Time (s)	3.5			6.8	3.2				
Peak Hour Factor	0.98	0.98	0.90	0.90	0.92	0.92			
Heavy Vehicles (%)	2%	0%	0%	1%	2%	2%			
Adj. Flow (vph)	255	0	0	1098	0	0			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	255	0	0	1098	0	0			
Enter Blocked Intersection	No	No	No	No	No	No			
Lane Alignment	Left	Right	Left	Left	Left	Right			
Median Width(ft)	26	<u> </u>		0	0				
Link Offset(ft)	0			0	0				
Crosswalk Width(ft)	16			16	16				
Two way Left Turn Lane									
Headway Factor	1.10	1.10	1.10	1.10	1.10	1.10			
Turning Speed (mph)	30	9	15			9			
Number of Detectors	1			2					
Detector Template	Left			Thru					
Leading Detector (ft)	20			100					
Trailing Detector (ft)	0			0					
Detector 1 Position(ft)	0			0					
Detector 1 Size(ft)	20			6					
Detector 1 Type	Cl+Ex			CI+Ex					
Detector 1 Channel									
Detector 1 Extend (s)	0.0			0.0					
Detector 1 Queue (s)	0.0			0.0					
Detector 1 Delay (s)	0.0			0.0					
Detector 2 Position(ft)				94					
Detector 2 Size(ft)				6					
Detector 2 Type				CI+Ex					
Detector 2 Channel									
Detector 2 Extend (s)				0.0					
Turn Type	Prot			NA					
Protected Phases	3			2 4			2	4	
Permitted Phases									
Detector Phase	3			24					

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Lane Group	SBL	SBR	SEL	SET	NWT	NWR	Ø2	Ø4	
Switch Phase									
Minimum Initial (s)	10.0						10.0	10.0	
Minimum Split (s)	19.0						15.0	15.0	
Total Split (s)	36.0						58.0	26.0	
Total Split (%)	30.0%						48%	22%	
Maximum Green (s)	30.0						53.0	21.0	
Yellow Time (s)	4.0						4.0	3.5	
All-Red Time (s)	2.0						1.0	1.5	
Lost Time Adjust (s)	0.0								
Total Lost Time (s)	6.0								
Lead/Lag	Lead							Lag	
Lead-Lag Optimize?									
Vehicle Extension (s)	3.0						3.0	3.0	
Recall Mode	Max						C-Max	Max	
Walk Time (s)	5.0								
Flash Dont Walk (s)	8.0								
Pedestrian Calls (#/hr)	0								
Act Effct Green (s)	30.0			79.0					
Actuated g/C Ratio	0.25			0.66					
v/c Ratio	0.26			0.50					
Control Delay	0.8			11.4					
Queue Delay	0.5			0.0					
Total Delay	1.3			11.4					
LOS	Α			В					
Approach Delay	1.3			11.4					
Approach LOS	Α			В					
Intersection Summary									
Area Type:	CBD								
Cycle Length: 120									
Actuated Cycle Length: 12									
Offset: 16 (13%), Referen	ced to phase	2:WBT, S	Start of Gr	reen					
Natural Cycle: 140									
Control Type: Actuated-C	oordinated								
Maximum v/c Ratio: 1.19									
Intersection Signal Delay:					tersection				
Intersection Capacity Utili	zation 47.8%			IC	CU Level	of Service	: A		
Analysis Period (min) 15									
Splits and Phases: 14:	Alewife Brook	R Parkway	& Route	2					
#11 #12 #13 #14					#11 #1	2 #13 #	14		#11 #12 #13 #14
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Lane Group	SBL	SET
Lane Group Flow (vph)	255	1098
v/c Ratio	0.26	0.50
Control Delay	0.8	11.4
Queue Delay	0.5	0.0
Total Delay	1.3	11.4
Queue Length 50th (ft)	0	210
Queue Length 95th (ft)	1	258
Internal Link Dist (ft)	75	217
Turn Bay Length (ft)		
Base Capacity (vph)	973	2188
Starvation Cap Reductn	391	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.44	0.50

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		^			†							
Traffic Volume (vph)	0	857	0	0	660	0	0	0	0	0	0	0
Future Volume (vph)	0	857	0	0	660	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	15	16	16	16	12	12	12	12	12	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	2049	0	0	2153	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	2049	0	0	2153	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		135			215			175			206	
Travel Time (s)		3.1			4.9			4.0			4.7	
Peak Hour Factor	0.84	0.84	0.84	0.97	0.97	0.97	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1020	0	0	680	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1020	0	0	680	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	J
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.88	0.88	0.88	0.85	0.85	0.85	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (ft)		100			100							
Trailing Detector (ft)		0			0							
Detector 1 Position(ft)		0			0							
Detector 1 Size(ft)		6			6							
Detector 1 Type		CI+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			6							
Permitted Phases												
Detector Phase		2			6							

Lane Group Ø9	
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Fit Protected	
Satd. Flow (prot)	
Fit Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases 9	
Permitted Phases	
Detector Phase	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)		4.0			4.0							
Minimum Split (s)		20.5			20.5							
Total Split (s)		47.0			47.0							
Total Split (%)		67.1%			67.1%							
Maximum Green (s)		42.5			42.5							
Yellow Time (s)		3.5			3.5							
All-Red Time (s)		1.0			1.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		4.5			4.5							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0			3.0							
Recall Mode		C-Max			C-Max							
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)		4			4							
Act Effct Green (s)		47.5			47.5							
Actuated g/C Ratio		0.68			0.68							
v/c Ratio		0.73			0.47							
Control Delay		11.3			6.9							
Queue Delay		50.6 61.8			1.8 8.6							
Total Delay LOS		01.0 E			0.0 A							
Approach Delay		61.8			8.6							
Approach LOS		01.0 E			0.0 A							
					^							
Intersection Summary Area Type: Otl	her											
Cycle Length: 70												
Actuated Cycle Length: 70												
Offset: 16 (23%), Referenced to	to nhase	2·FRT ar	nd 6·WRT	Start of	Green							
Natural Cycle: 60	o priasc	Z.LDT at	IG O.VVDT	, Otali oi	Olccii							
Control Type: Actuated-Coordi	nated											
Maximum v/c Ratio: 0.73												
Intersection Signal Delay: 40.6				Ir	ntersection	LOS: D						
Intersection Capacity Utilizatio	n 48.9%			IC	CU Level o	of Service	Α					
Analysis Period (min) 15												
Splits and Phases: 36: Minu	teman C	ommuter	Bikeway	& Lake S	Street							
→ø2 (R)								#1 Ø9				
47 s								23 s				
Ø6 (R)												

Lane Group	Ø9
Switch Phase	.50
Minimum Initial (s)	4.0
Minimum Split (s)	18.0
Total Split (s)	23.0
Total Split (%)	33%
Maximum Green (s)	21.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	220
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

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		MOT
Lane Group	EBT	WBT
Lane Group Flow (vph)	1020	680
v/c Ratio	0.73	0.47
Control Delay	11.3	6.9
Queue Delay	50.6	1.8
Total Delay	61.8	8.6
Queue Length 50th (ft)	233	230
Queue Length 95th (ft)	316	168
Internal Link Dist (ft)	55	135
Turn Bay Length (ft)		
Base Capacity (vph)	1390	1460
Starvation Cap Reductn	0	585
Spillback Cap Reductn	609	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	1.31	0.78
Internation Comment		
Intersection Summary		

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Volume (vph)	82	705	70	6	537	1	15	5	7	0	5	108
Future Volume (vph)	82	705	70	6	537	1	15	5	7	0	5	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	14	13	13	13	12	12	12	12	12	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.989						0.966			0.871	
Flt Protected		0.995			0.999			0.973				
Satd. Flow (prot)	0	1994	0	0	1961	0	0	1786	0	0	1655	0
Flt Permitted		0.893			0.991			0.635				
Satd. Flow (perm)	0	1790	0	0	1946	0	0	1165	0	0	1655	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8						9			140	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		215			1126			206			208	
Travel Time (s)		4.9			25.6			4.7			4.7	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.75	0.75	0.75	0.77	0.77	0.77
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	93	801	80	7	610	1	20	7	9	0	6	140
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	974	0	0	618	0	0	36	0	0	146	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.92	0.92	0.92	0.96	0.96	0.96	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	CI+Ex	Cl+Ex		CI+Ex	Cl+Ex		Cl+Ex	Cl+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s) Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	• ————————————————————————————————————
Detector Phase	

	•	-	\rightarrow	•	←	•	4	†	/	-	ļ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.5	20.5		20.5	20.5		14.0	14.0		14.0	14.0	
Total Split (s)	36.0	36.0		36.0	36.0		14.0	14.0		14.0	14.0	
Total Split (%)	51.4%	51.4%		51.4%	51.4%		20.0%	20.0%		20.0%	20.0%	
Maximum Green (s)	31.5	31.5		31.5	31.5		9.5	9.5		9.5	9.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.5			4.5			4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Min	Min		Min	Min	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		43.2			43.2			7.0			7.0	
Actuated g/C Ratio		0.62			0.62			0.10			0.10	
v/c Ratio		0.88			0.52			0.29			0.50	
Control Delay		26.9			12.3			29.2			12.8	
Queue Delay		47.7			0.6			0.0			0.2	
Total Delay		74.6			12.9			29.2			13.0	
LOS		Ε			В			С			В	
Approach Delay		74.6			12.9			29.2			13.0	
Approach LOS		Е			В			С			В	
Intersection Summary												
	Other											
Cycle Length: 70												
Actuated Cycle Length: 70				_								
Offset: 0 (0%), Referenced	to phase 2	:EBTL and	d 6:WBTL	L, Start o	f Green, M	aster Inte	ersection					
Natural Cycle: 90												
Control Type: Actuated-Coo	ordinated											
Maximum v/c Ratio: 0.88												
Intersection Signal Delay: 4					ntersection		_					
Intersection Capacity Utiliza	ition 94.0%)		Į(CU Level of	of Service) F					
Analysis Period (min) 15												
Splits and Phases: 39: Br	ooks Aven	iue & Lake	Street									
Ø2 (R)					4	Ø4		À	k _{Ø9}			

Lane Group	Ø9
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	18.0
Total Split (s)	20.0
Total Split (%)	29%
Maximum Green (s)	18.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	42
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

	-	•	†	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	974	618	36	146
v/c Ratio	0.88	0.52	0.29	0.50
Control Delay	26.9	12.3	29.2	12.8
Queue Delay	47.7	0.6	0.0	0.2
Total Delay	74.6	12.9	29.2	13.0
Queue Length 50th (ft)	~281	174	11	2
Queue Length 95th (ft)	#678	289	29	33
Internal Link Dist (ft)	135	1046	126	128
Turn Bay Length (ft)				
Base Capacity (vph)	1107	1200	165	345
Starvation Cap Reductn	247	0	0	0
Spillback Cap Reductn	0	254	0	18
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.13	0.65	0.22	0.45

Intersection Summary

Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Intersection						
Intersection Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	₽			र्स	N/	
Traffic Vol, veh/h	844	3	1	610	9	4
Future Vol, veh/h	844	3	1	610	9	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage,	# 0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	94	94	75	75
Heavy Vehicles, %	0	0	0	0	29	0
	1017	4	1	649	12	5
NA - ' /NA'			1.1.0		A'	
	lajor1		Major2		Minor1	
Conflicting Flow All	0	0	1021	0	1670	1019
Stage 1	-	-	-	-	1019	-
Stage 2	-	-	-	-	651	-
Critical Hdwy	-	-	4.1	-	6.69	6.2
Critical Hdwy Stg 1	-	-	-	-	5.69	-
Critical Hdwy Stg 2	-	-	-	-	5.69	-
Follow-up Hdwy	-	-	2.2	-	3.761	3.3
Pot Cap-1 Maneuver	-	-	688	-	91	290
Stage 1	-	-	-	-	311	-
Stage 2	-	-	-	-	472	-
Platoon blocked, %	_	-		-		
Mov Cap-1 Maneuver	-	-	688	_	91	290
Mov Cap-2 Maneuver	_	_	-	_	91	-
Stage 1	_	_	_	_	311	_
Stage 2	_	_	_	_	471	_
Slaye Z	_	_	_	_	4/1	<u>-</u>
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		41.8	
HCM LOS					E	
					_	
		.D			14/51	14/5=
Minor Lane/Major Mvmt	1	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)		115	-	-	688	-
HCM Lane V/C Ratio		0.151	-	-	0.002	-
HCM Control Delay (s)		41.8	-	-	10.2	0
HCM Lane LOS		Е	-	-	В	Α
HCM 95th %tile Q(veh)		0.5	-	-	0	-

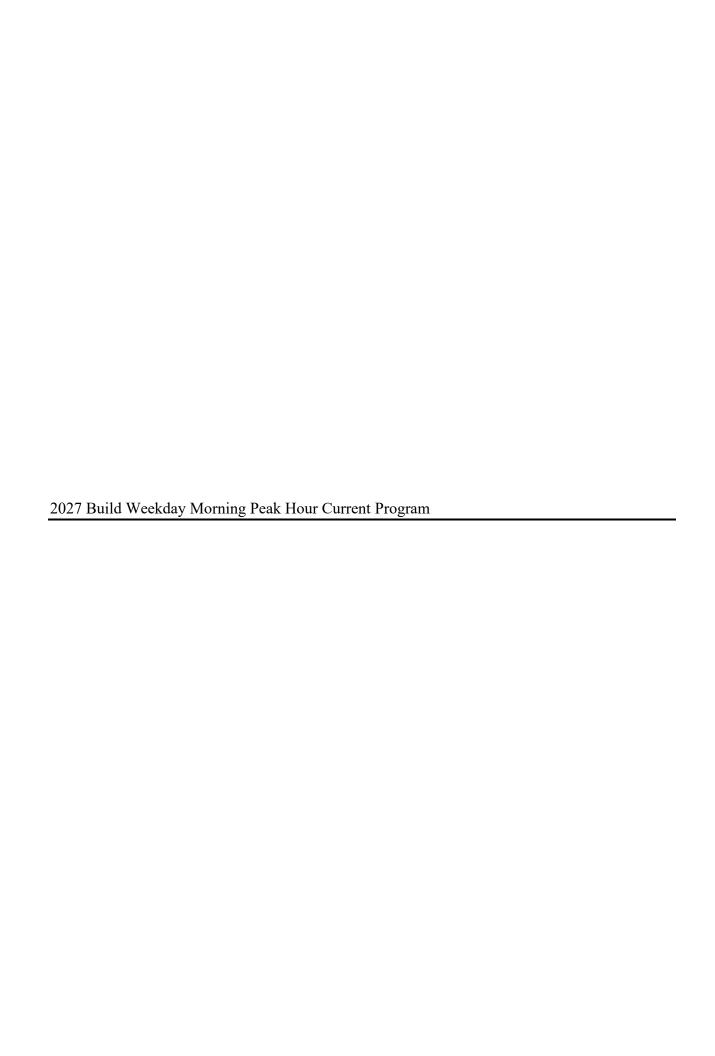
Intersection						
Int Delay, s/veh	1.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
		EDK	VVDL			NDK
Lane Configurations	^	0	^	€	Y	-
Traffic Vol, veh/h	842	6	9	588	23	5
Future Vol, veh/h	842	6	9	588	23	5
Conflicting Peds, #/hr	_ 0	_ 0	_ 0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage	e, # 0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	89	89	75	75
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	968	7	10	661	31	7
	Major1		Major2		Minor1	
Conflicting Flow All	0	0	975	0	1653	972
Stage 1	-	-	-	-	972	-
Stage 2	-	-	-	-	681	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	716	-	109	309
Stage 1	_	-	_	-	370	-
Stage 2	_	_	_	_	506	-
Platoon blocked, %	_	_		_	500	
Mov Cap-1 Maneuver	-	_	716	_	107	309
Mov Cap-1 Maneuver	<u>-</u>		110	<u>-</u>	107	309
		-	-			
Stage 1	-	-	-	-	370	-
Stage 2	-	-	-	-	495	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.2		47.5	
HCM LOS	•		0.2		E	
TIOW LOO						
Minor Lane/Major Mvm	nt N	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)		121	-	-	716	-
HCM Lane V/C Ratio		0.309	-	_	0.014	_
HCM Control Delay (s))	47.5	_	_	10.1	0
HCM Lane LOS		Ε	_	_	В	A
HCM 95th %tile Q(veh)	1.2	_	_	0	-
HOW SOUT 70 MILE COLVERY	1	1.2	_	_	U	

Intersection						
Int Delay, s/veh	0.3					
		EDD	ME	MOT	NDI	NDD
	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1			₹	¥	
Traffic Vol, veh/h	846	1	1	591	6	4
Future Vol, veh/h	846	1	1	591	6	4
Conflicting Peds, #/hr	_ 0	0	0	0	0	0
	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None		
Storage Length	-	-	-	-	0	-
Veh in Median Storage,		-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	89	89	75	75
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	972	1	1	664	8	5
Major/Minor NA	oior1		/aior?	N.	Ninor1	
	ajor1		Major2		Minor1	070
Conflicting Flow All	0	0	973	0	1639	973
Stage 1	-	-	-	-	973	-
Stage 2	-	-	-	-	666	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	717	-	112	309
Stage 1	-	-	-	-	370	-
Stage 2	-	-	-	-	515	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	717	-	112	309
Mov Cap-2 Maneuver	_	_	-	_	112	-
Stage 1	_	_	_	_	370	_
Stage 2	_	_	_	_	514	_
Olago Z	_	_			J 1 T	
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		31.3	
HCM LOS					D	
Minor Lang/Major Meret		JDI 51	EDT	EDD	WDI	WDT
Minor Lane/Major Mvmt	Γ	VBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)		150	-	-	717	-
HCM Lane V/C Ratio		0.089	-		0.002	-
HCM Control Delay (s)		31.3	-	-	10	0
HCM Lane LOS		D	-	_	В	Α
HCM 95th %tile Q(veh)		0.3			0	

Interception												
Intersection Int Delay, s/veh	1.1											
•												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Vol, veh/h	4	827	19	11	578	8	13	1	6	3	0	1
Future Vol, veh/h	4	827	19	11	578	8	13	1	6	3	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage,	# -	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	5	962	22	13	672	9	17	1	8	4	0	1
Major/Minor Major/Minor	ajor1			Major2		_	Minor1			Minor2		
Conflicting Flow All	681	0	0	984	0	0	1686	1690	973	1691	1697	677
Stage 1	-	-		JU -	-	-	983	983	-	703	703	-
Stage 2	_		_	_	_	_	703	707	_	988	994	_
Critical Hdwy	4.1		_	4.1	_	_	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	4.1	_	_	4.1	_	_	6.1	5.5	0.2	6.1	5.5	0.2
Critical Hdwy Stg 2	_		_	_	_	_	6.1	5.5	-	6.1	5.5	_
Follow-up Hdwy	2.2	_	_	2.2	_	_	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	921		_	710	_	-	75	94	309	75	93	456
Stage 1	92 I -	_	_	710	_	_	302	329	509	431	443	430
Stage 2	_	-	-	_	_	_	431	441	_	300	326	-
Platoon blocked, %			_		_	_	701	771	_	300	020	_
Mov Cap-1 Maneuver	921		_	710	_	-	72	90	309	70	89	456
Mov Cap-2 Maneuver	3 <u>2</u> 1		_	710	_	_	72	90	509	70	89	430
Stage 1	_	-	-	_	-	-	298	325	_	426	430	-
Stage 2	_	_	_	_	_	_	417	428	_	288	322	_
Glage Z	_	-	-	_	-	-	71/	720	_	200	522	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.2			57.1			48		
HCM LOS							F			Е		
Minor Lane/Major Mvmt	N	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)		95	921			710	-		89			
HCM Lane V/C Ratio		0.281	0.005	_		0.018	_	_	0.06			
HCM Control Delay (s)		57.1	8.9	0	-	10.2	0	-	48			
HCM Lane LOS		57.1	0.9 A	A	_	10.2 B	A	_	40 E			
HCM 95th %tile Q(veh)		1	0	-	_	0.1	-		0.2			
HOW SOUL WILLE COVER)			U	_	-	U. I	-	-	U.Z			

Intersection												
Int Delay, s/veh	10											
	EDI	FDT	EDD	WDI	WDT	WDD	NDI	NDT	NDD	CDI	CDT	CDD
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	40	4	47	07	4	40	•	4	40	•	4	
Traffic Vol, veh/h	19	800	17	67	577	16	9	0	48	9	0	11
Future Vol, veh/h	19	800	17	67	577	16	9	0	48	9	0	11
Conflicting Peds, #/hr	_ 0	_ 0	_ 0	304	_ 0	_ 0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage,	# -	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	88	88	88	81	81	81	80	80	80
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	23	964	20	76	656	18	11	0	59	11	0	14
Major/Minor M	lajor1		_	Major2			Minor1		N	Minor2		
Conflicting Flow All	674	0	0	1288	0	0	2148	2150	1278	1867	2151	665
Stage 1	-	-	-	-	-	-	1324	1324	-	817	817	-
Stage 2	_	_	_	_	_	_	824	826	_	1050	1334	_
Critical Hdwy	4.1	_	_	4.1	_	_	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	7.1	_	_		_	_	6.1	5.5	- 0.2	6.1	5.5	- 0.2
Critical Hdwy Stg 2	_	_	_	_	_	_	6.1	5.5	_	6.1	5.5	_
Follow-up Hdwy	2.2	_	_	2.2	_	_	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	927	_	_	545	_	_	35	49	205	56	49	464
Stage 1	JZ1 -	_	_	-	_	_	194	227	200	373	393	-
Stage 2	_		_	_	_	_	370	389	_	277	225	_
Platoon blocked, %		_	_		_	_	310	505				
Mov Cap-1 Maneuver	927	_	_	407	_	_	19	24	153	25	24	464
Mov Cap-2 Maneuver	-	_	_	-	_	_	19	24	-	25	24	-
Stage 1	_						137	160	_	352	275	_
Stage 2	_	_	_	_	_	_	252	273	_	160	159	_
Olugo Z							202	210		100	100	
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			1.6			198.3			126.6		
HCM LOS							F			F		
Minor Lane/Major Mvmt		NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)		72	927	_	_	407		_	52			
HCM Lane V/C Ratio		0.977	0.025	_		0.187	_		0.481			
HCM Control Delay (s)		198.3	9	0	_	15.9	0		126.6			
HCM Lane LOS		F	A	A	<u>-</u>	C	A	_	120.0 F			
HCM 95th %tile Q(veh)		5	0.1	-	_	0.7		_	1.8			
		- 3	J. 1			5.1			1.0			

	۶	→	+	4	/	4
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		स	f		W	
Traffic Volume (veh/h)	8	5	20	20	15	0
Future Volume (Veh/h)	8	5	20	20	15	0
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	5	22	22	16	0
Pedestrians	•					•
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)					140110	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	65	32	32	0	0	
vC1, stage 1 conf vol	00	02	02	- U	<u> </u>	
vC2, stage 2 conf vol						
vCu, unblocked vol	65	32	32	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)	7.1	0.0	0.0	0.2	7.1	
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	99	99	97	98	99	
cM capacity (veh/h)	890	856	856	1091	1636	
				1031	1000	
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	14	44	16			
Volume Left	9	0	16			
Volume Right	0	22	0			
cSH	878	959	1636			
Volume to Capacity	0.02	0.05	0.01			
Queue Length 95th (ft)	1	4	1			
Control Delay (s)	9.2	8.9	7.2			
Lane LOS	Α	Α	А			
Approach Delay (s)	9.2	8.9	7.2			
Approach LOS	Α	Α				
Intersection Summary						
Average Delay			8.6			
Intersection Capacity Utiliza	tion		17.4%	IC	U Level o	of Service
Analysis Period (min)			15			



	>	74	×	4	*	*		
Lane Group	EBL	EBR	SET	SER	NWL	NWT	Ø9	
Lane Configurations	ሻ	7	^	1	ኝ	†		
Traffic Volume (vph)	261	295	851	609	404	454		
Future Volume (vph)	261	295	851	609	404	454		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	16	16	11	10	11	12		
Grade (%)	0%	10	0%	10		0%		
Storage Length (ft)	0	100	070	55	150	070		
Storage Lanes	1	1		1	130			
Taper Length (ft)	25	•		•	25			
Right Turn on Red	20	Yes		Yes	20			
Link Speed (mph)	30	103	30	103		30		
Link Distance (ft)	1126		640			645		
Travel Time (s)	25.6		14.5			14.7		
Lane Group Flow (vph)	287	324	925	662	439	493		
Turn Type	Prot	Perm	923 NA	Perm	pm+pt	493 NA		
Protected Phases	4	i Cilii	6	i Cilii	рит+рі 5	2	9	
Permitted Phases	4	4	U	6	2		7	
Detector Phase	4	4	6	6	5	2		
Switch Phase	4	4	U	Ü	3	2		
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	23.0	23.0	23.0	23.0	10.0	23.0	19.0	
Total Split (s)	29.0	29.0	38.0	38.0	15.0	53.0	23.0	
Total Split (%)	27.6%	27.6%	36.2%	36.2%	14.3%	50.5%	23.0	
Maximum Green (s)	22.0	22.0	31.0	31.0	9.0	46.0	20.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	40.0	20.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	1.0	
, ,	0.0	0.0	0.0	0.0	0.0	0.0	1.0	
Lost Time Adjust (s)	7.0		7.0	7.0	6.0			
Total Lost Time (s)	7.0	7.0				7.0		
Lead/Lag			Lag	Lag	Lead			
Lead-Lag Optimize?	2.0	2.0	Yes	Yes	Yes	2.0	2.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	None	Max	Max	None	Max	None	
Walk Time (s)							5.0	
Flash Dont Walk (s)							11.0	
Pedestrian Calls (#/hr)	47.0	47.0	01.0	01.5	40.0	47.0	35	
Act Effct Green (s)	17.2	17.2	31.8	31.8	48.2	47.2		
Actuated g/C Ratio	0.19	0.19	0.36	0.36	0.54	0.53		
v/c Ratio	0.73	0.59	0.76	0.99	1.50	0.50		
Control Delay	46.7	14.3	32.8	55.6	263.2	18.7		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	46.7	14.3	32.8	55.6	263.2	18.7		
LOS	D	В	С	E	F	В		
Approach Delay	29.5		42.3			133.9		
Approach LOS	С		D			F		
Queue Length 50th (ft)	170	42	282	~364	~341	214		
Queue Length 95th (ft)	259	125	#409	#606	#555	332		

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Lane Group	EBL	EBR	SET	SER	NWL	NWT	Ø9
Internal Link Dist (ft)	1046		560			565	
Turn Bay Length (ft)		100		55	150		
Base Capacity (vph)	514	642	1224	669	292	989	
Starvation Cap Reductn	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	
Reduced v/c Ratio	0.56	0.50	0.76	0.99	1.50	0.50	

Intersection Summary

Area Type: Other

Cycle Length: 105

Actuated Cycle Length: 88.9

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.50

Intersection Signal Delay: 67.1 Intersection LOS: E
Intersection Capacity Utilization 77.0% ICU Level of Service D

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: Massachusetts Aevnue/Massachusetts Avenue & Lake Street



	→	•	•	•	₹I	•	/
Lane Group	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations	<u> </u>	7	ኘ	^		Ä	7
Traffic Volume (vph)	312	493	211	421	271	221	525
Future Volume (vph)	312	493	211	421	271	221	525
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	10	11	12	16	14
Grade (%)	0%			0%		0%	
Storage Length (ft)	070	150	110	070		0	0
Storage Lanes		1	1			1	1
Taper Length (ft)		•	25			25	•
Right Turn on Red		Yes					Yes
Link Speed (mph)	30	, , ,		30		30	
Link Distance (ft)	239			505		387	
Travel Time (s)	5.4			11.5		8.8	
Lane Group Flow (vph)	343	542	251	501	0	541	577
Turn Type	NA	Free	Prot	NA	Perm	Prot	Perm
Protected Phases	4		3	8	. 5.111	2	. 0.111
Permitted Phases		Free			2		2
Detector Phase	4		3	8	2	2	2
Switch Phase							
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0		9.0	21.0	21.0	21.0	21.0
Total Split (s)	74.0		25.0	99.0	21.0	21.0	21.0
Total Split (%)	61.7%		20.8%	82.5%	17.5%	17.5%	17.5%
Maximum Green (s)	69.0		20.0	94.0	16.0	16.0	16.0
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0		5.0	5.0		5.0	5.0
Lead/Lag	Lag		Lead				
Lead-Lag Optimize?	Yes		Yes				
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0		3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0	0.0
Recall Mode	None		None	None	Max	Max	Max
Walk Time (s)	5.0		110110	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0			11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0	0
Act Effct Green (s)	15.8	63.4	16.3	37.2	U	16.1	16.1
Actuated g/C Ratio	0.25	1.00	0.26	0.59		0.25	0.25
v/c Ratio	0.25	0.30	0.20	0.37		1.04	0.23
Control Delay	27.8	0.30	27.3	6.5		79.8	17.1
Queue Delay	0.0	0.4	0.0	0.0		0.0	0.0
Total Delay	27.8	0.0	27.3	6.5		79.8	17.1
LOS	27.8 C	0.4 A	27.3 C	0.5 A		79.8 E	17.1 B
Approach Delay	11.0	A	C	13.4		47.4	D
	11.0 B			13.4 B		47.4 D	
Approach LOS		0	ດາ				EE
Queue Length 50th (ft)	119		83	43		~235	55 #247
Queue Length 95th (ft)	205	0	151	57		#482	#247

	→	•	•	•	₹ T			
Lane Group	EBT	EBR	WBL	WBT	NBU	NBL	NBR	
Internal Link Dist (ft)	159			425		307		
Turn Bay Length (ft)		150	110					
Base Capacity (vph)	2110	1812	536	3455		519	737	
Starvation Cap Reductn	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0		0	0	
Reduced v/c Ratio	0.16	0.30	0.47	0.15		1.04	0.78	

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 63.4

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.04 Intersection Signal Delay: 26.5

Intersection Signal Delay: 26.5 Intersection LOS: C
Intersection Capacity Utilization 67.9% ICU Level of Service C

Analysis Period (min) 15

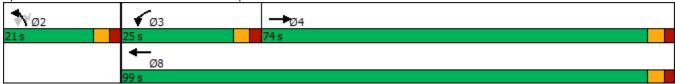
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: Route 2 EB On/Off Ramps & Lake Street



	*	-	74	•	←	*_	\	×	4	*	*	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations	ሻ	†			†	7				*	4	7
Traffic Volume (vph)	224	613	0	0	481	725	0	0	0	151	6	11
Future Volume (vph)	224	613	0	0	481	725	0	0	0	151	6	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	11	10	12	12	12	11	12	16
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	250		0	0		75	0		0	100		0
Storage Lanes	1		0	0		1	0		0	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		505			380			459			529	
Travel Time (s)		11.5			8.6			10.4			12.0	
Lane Group Flow (vph)	255	697	0	0	523	788	0	0	0	97	96	14
Turn Type	Prot	NA			NA	Perm				Split	NA	Perm
Protected Phases	7	4			8					2	2	
Permitted Phases						8						2
Detector Phase	7	4			8	8				2	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0			4.0	4.0				4.0	4.0	4.0
Minimum Split (s)	8.5	22.0			22.0	22.0				22.0	22.0	22.0
Total Split (s)	16.0	38.0			22.0	22.0				22.0	22.0	22.0
Total Split (%)	26.7%	63.3%			36.7%	36.7%				36.7%	36.7%	36.7%
Maximum Green (s)	11.5	32.0			16.0	16.0				16.0	16.0	16.0
Yellow Time (s)	4.0	4.0			4.0	4.0				4.0	4.0	4.0
All-Red Time (s)	0.5	2.0			2.0	2.0				2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0				0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0			6.0	6.0				6.0	6.0	6.0
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Vehicle Extension (s)	3.0	3.0			3.0	3.0				3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0			3.0	3.0				3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0			0.0	0.0				0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0			0.0	0.0				0.0	0.0	0.0
Recall Mode	None	None			None	None				Max	Max	Max
Walk Time (s)		5.0			5.0	5.0				5.0	5.0	5.0
Flash Dont Walk (s)		11.0			11.0	11.0				11.0	11.0	11.0
Pedestrian Calls (#/hr)		0			0	0				0	0	0
Act Effct Green (s)	11.0	31.5			16.0	16.0				16.0	16.0	16.0
Actuated g/C Ratio	0.18	0.53			0.27	0.27				0.27	0.27	0.27
v/c Ratio	0.77	0.70			1.06	1.04				0.23	0.22	0.02
Control Delay	40.9	15.2			83.1	54.3				19.0	18.9	0.1
Queue Delay	0.0	0.0			0.0	0.0				0.0	0.0	0.0
Total Delay	40.9	15.2			83.1	54.3				19.0	18.9	0.1
LOS	D	В			F	D				В	В	Α
Approach Delay		22.1			65.8						17.7	
Approach LOS		С			Е						В	
Queue Length 50th (ft)	88	169			~217	~168				28	28	0
Queue Length 95th (ft)	#179	269			#380	#364				56	55	0

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Internal Link Dist (ft)		425			300			379			449	
Turn Bay Length (ft)	250					75				100		
Base Capacity (vph)	348	1012			494	761				425	429	591
Starvation Cap Reductn	0	0			0	0				0	0	0
Spillback Cap Reductn	0	0			0	0				0	0	0
Storage Cap Reductn	0	0			0	0				0	0	0
Reduced v/c Ratio	0.73	0.69			1.06	1.04				0.23	0.22	0.02

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 59.5

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.06

Intersection Signal Delay: 44.9 Intersection LOS: D
Intersection Capacity Utilization 75.4% ICU Level of Service D

Analysis Period (min) 15

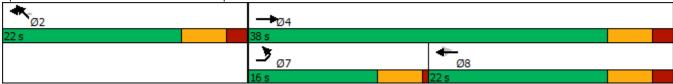
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 7: Route 2 WB Off Ramp & Lake Street



	#	-	←	₹	6	4			
Lane Group	EBL	EBT	WBT	WBR	SWL	SWR	Ø3	Ø4	
Lane Configurations			^ ^			77			
Traffic Volume (vph)	0	0	1597	0	0	1062			
Future Volume (vph)	0	0	1597	0	0	1062			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Lane Width (ft)	13	13	13	13	13	13			
Grade (%)	10	0%	0%		0%	10			
Storage Length (ft)	0	0,0	0,0	0	0	0			
Storage Lanes	0			0	0	2			
Taper Length (ft)	25				25	_			
Right Turn on Red				Yes		Yes			
Link Speed (mph)		30	30		30				
Link Distance (ft)		201	192		296				
Travel Time (s)		4.6	4.4		6.7				
Lane Group Flow (vph)	0	0	1774	0	0	1249			
Turn Type	_		NA	_		custom			
Protected Phases			2			3 4	3	4	
Permitted Phases			_					•	
Detector Phase			2			3 4			
Switch Phase									
Minimum Initial (s)			10.0				10.0	10.0	
Minimum Split (s)			15.0				19.0	15.0	
Total Split (s)			58.0				36.0	26.0	
Total Split (%)			48.3%				30%	22%	
Maximum Green (s)			53.0				30.0	21.0	
Yellow Time (s)			4.0				4.0	3.5	
All-Red Time (s)			1.0				2.0	1.5	
Lost Time Adjust (s)			0.0						
Total Lost Time (s)			5.0						
Lead/Lag							Lead	Lag	
Lead-Lag Optimize?								<u> </u>	
Vehicle Extension (s)			3.0				3.0	3.0	
Minimum Gap (s)			3.0				3.0	3.0	
Time Before Reduce (s)			0.0				0.0	0.0	
Time To Reduce (s)			0.0				0.0	0.0	
Recall Mode			C-Max				Max	Max	
Walk Time (s)							5.0		
Flash Dont Walk (s)							8.0		
Pedestrian Calls (#/hr)							0		
Act Effct Green (s)			53.0			56.0			
Actuated g/C Ratio			0.44			0.47			
v/c Ratio			0.85			1.02			
Control Delay			5.6			62.8			
Queue Delay			4.6			0.0			
Total Delay			10.1			62.8			
LOS			В			Е			
Approach Delay			10.1		62.8				
Approach LOS			В		Е				
Queue Length 50th (ft)			43			~581			
Queue Length 95th (ft)			m40			#659			

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Lane Group	EBL	EBT	WBT	WBR	SWL	SWR	Ø3	Ø4	
Internal Link Dist (ft)		121	112		216				
Turn Bay Length (ft)									
Base Capacity (vph)			2088			1225			
Starvation Cap Reductn			252			0			
Spillback Cap Reductn			0			0			
Storage Cap Reductn			0			0			
Reduced v/c Ratio			0.97			1.02			

Area Type: CBD

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 16 (13%), Referenced to phase 2:WBT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.09

Intersection Signal Delay: 31.9 Intersection LOS: C
Intersection Capacity Utilization 84.7% ICU Level of Service E

Analysis Period (min) 15

Volume exceeds capacity, queue is theoretically infinite.

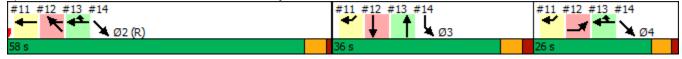
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

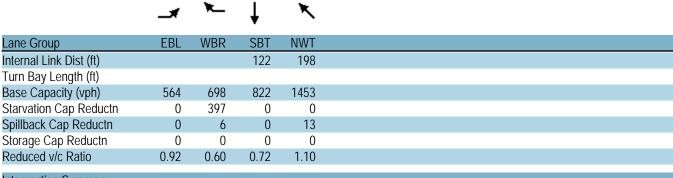
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: Route 2/Alewife Brook Parkway & Route 16



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Lane Group	EBL	WBR	SBT	NWT
Lane Configurations	ሻሻ	7	^	^
Traffic Volume (vph)	505	169	506	1428
Future Volume (vph)	505	169	506	1428
	1900	1900	1900	1900
Ideal Flow (vphpl)				
Lane Width (ft)	13	16	13	13
Grade (%)			0%	0%
Storage Length (ft)	0	0		
Storage Lanes	2	1		
Taper Length (ft)	25			
Right Turn on Red				
Link Speed (mph)			30	30
Link Distance (ft)			202	278
Travel Time (s)			4.6	6.3
Lane Group Flow (vph)	521	180	595	1587
Turn Type	Prot	Prot	NA	NA
Protected Phases	4	2!	3	2!
Permitted Phases	4	Z:	J	Z:
	1	2	3	2
Detector Phase	4	2	3	2
Switch Phase	400	40.0	10.0	10.0
Minimum Initial (s)	10.0	10.0	10.0	10.0
Minimum Split (s)	15.0	15.0	19.0	15.0
Total Split (s)	26.0	58.0	36.0	58.0
Total Split (%)	21.7%	48.3%	30.0%	48.3%
Maximum Green (s)	21.0	53.0	30.0	53.0
Yellow Time (s)	3.5	4.0	4.0	4.0
All-Red Time (s)	1.5	1.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	5.0
Lead/Lag	Lag	5.0	Lead	5.0
	Lay		Leau	
Lead-Lag Optimize?	2.0	2.0	2.0	2.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0
Recall Mode	Max	C-Max		C-Max
Walk Time (s)			5.0	
Flash Dont Walk (s)			8.0	
Pedestrian Calls (#/hr)			0	
Act Effct Green (s)	21.0	53.0	30.0	53.0
Actuated g/C Ratio	0.18	0.44	0.25	0.44
v/c Ratio	0.10	0.44	0.72	1.09
Control Delay	72.2	14.3	47.1	85.8
		2.4		
Queue Delay	0.0		0.0	3.3
Total Delay	72.2	16.7	47.1	89.1
LOS	E	В	D	F
Approach Delay			47.1	89.1
Approach LOS			D	F
Queue Length 50th (ft)	206	86	223	~730
Queue Length 95th (ft)	#308	138	269	#868



Area Type: CBD

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 16 (13%), Referenced to phase 2:WBT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.09

Intersection Signal Delay: 72.8 Intersection LOS: E
Intersection Capacity Utilization 103.7% ICU Level of Service G

Analysis Period (min) 15

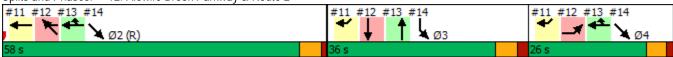
Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Phase conflict between lane groups.

Splits and Phases: 12: Alewife Brook Parkway & Route 2



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					^	7		^				,
Traffic Volume (vph)	0	0	0	0	169	54	0	224	0	0	0	0
Future Volume (vph)	0	0	0	0	169	54	0	224	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		200	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			No			No	No		No			No
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		161			1225			227			185	
Travel Time (s)		3.7			27.8			5.2			4.2	
Lane Group Flow (vph)	0	0	0	0	184	59	0	249	0	0	0	0
Turn Type					NA	Prot	· ·	NA	· ·			Ü
Protected Phases					2.4	2 4		3				
Permitted Phases					2 7	2 7		3				
Detector Phase					2 4	2 4		3				
Switch Phase					2 7	2 7		3				
Minimum Initial (s)								10.0				
Minimum Split (s)								19.0				
Total Split (s)								36.0				
Total Split (%)								30.0%				
Maximum Green (s)								30.070				
Yellow Time (s)								4.0				
All-Red Time (s)								2.0				
Lost Time Adjust (s)								0.0				
Total Lost Time (s)								6.0				
Lead/Lag								Lead				
Lead-Lag Optimize?								Leau				
Vehicle Extension (s)								3.0				
Minimum Gap (s)								3.0				
Time Before Reduce (s)								0.0				
Time To Reduce (s)								0.0				
Recall Mode								Max 5.0				
Walk Time (s) Flash Dont Walk (s)												
								8.0				
Pedestrian Calls (#/hr)					70.0	70.0		0				
Act Effet Green (s)					79.0	79.0		30.0				
Actuated g/C Ratio					0.66	0.66		0.25				
v/c Ratio					0.17	0.07		0.32				
Control Delay					8.4	7.6		38.0				
Queue Delay					0.1	0.0		0.0				
Total Delay					8.5	7.6		38.0				
LOS					A	А		D				
Approach Delay					8.3			38.0				
Approach LOS					A	4.5		D				
Queue Length 50th (ft)					50	15		83				
Queue Length 95th (ft)					81	31		121				

Lane Group	Ø2	Ø4
Lane Configurations	NZ.	
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Grade (%)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Right Turn on Red		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Lane Group Flow (vph)		
Turn Type	_	
Protected Phases	2	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	10.0	10.0
Minimum Split (s)	15.0	15.0
Total Split (s)	58.0	26.0
Total Split (%)	48%	22%
Maximum Green (s)	53.0	21.0
Yellow Time (s)	4.0	3.5
All-Red Time (s)	1.0	1.5
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		Lag
Lead-Lag Optimize?		Ü
Vehicle Extension (s)	3.0	3.0
Minimum Gap (s)	3.0	3.0
Time Before Reduce (s)	0.0	0.0
Time To Reduce (s)	0.0	0.0
Recall Mode	C-Max	Max
Walk Time (s)	,	,
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS Approach Dolov		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		

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		-	-			-	-	-		-	
EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
	81			1145			147			105	
					200						
				1061	877		788				
				0	0		0				
				223	0		0				
				0	0		0				
				0.22	0.07		0.32				
	EBL				81 1145 1061 0 223 0	81 1145 200 1061 877 0 0 223 0 0 0	81 1145 200 1061 877 0 0 223 0 0 0	81 1145 147 200 1061 877 788 0 0 0 223 0 0 0 0 0	81 1145 147 200 1061 877 788 0 0 0 223 0 0 0 0 0	81 1145 147 200 1061 877 788 0 0 0 223 0 0 0 0 0	81 1145 147 105 200 1061 877 788 0 0 0 223 0 0 0 0 0

Intersection Summary

Area Type: CBD

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 16 (13%), Referenced to phase 2:WBT, Start of Green

Natural Cycle: 110

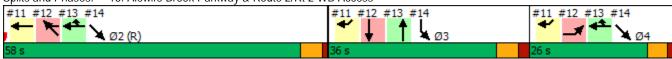
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.09

Intersection Signal Delay: 23.3 Intersection LOS: C
Intersection Capacity Utilization 27.4% ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 13: Alewife Brook Parkway & Route 2/Rt 2 WB Access



Lane Group	Ø2	Ø4
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

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Lane Group	SBL	SBR	SEL	SET	NWT	NWR	Ø2	Ø4	
Lane Configurations	ሻሻ			^					
Traffic Volume (vph)	506	0	0	1103	0	0			
Future Volume (vph)	506	0	0	1103	0	0			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Lane Width (ft)	13	13	13	13	13	13			
Grade (%)	0%			0%	0%				
Storage Length (ft)	0	0	0			0			
Storage Lanes	2	0	0			0			
Taper Length (ft)	25		25						
Right Turn on Red	Yes	Yes				Yes			
Link Speed (mph)	30			30	30				
Link Distance (ft)	155			297	139				
Travel Time (s)	3.5			6.8	3.2				
Lane Group Flow (vph)	595	0	0	1137	0	0			
Turn Type	Prot			NA					
Protected Phases	3			2.4			2	4	
Permitted Phases									
Detector Phase	3			2 4					
Switch Phase									
Minimum Initial (s)	10.0						10.0	10.0	
Minimum Split (s)	19.0						15.0	15.0	
Total Split (s)	36.0						58.0	26.0	
Total Split (%)	30.0%						48%	22%	
Maximum Green (s)	30.0						53.0	21.0	
Yellow Time (s)	4.0						4.0	3.5	
All-Red Time (s)	2.0						1.0	1.5	
Lost Time Adjust (s)	0.0								
Total Lost Time (s)	6.0								
Lead/Lag	Lead							Lag	
Lead-Lag Optimize?								- J	
Vehicle Extension (s)	3.0						3.0	3.0	
Minimum Gap (s)	3.0						3.0	3.0	
Time Before Reduce (s)	0.0						0.0	0.0	
Time To Reduce (s)	0.0						0.0	0.0	
Recall Mode	Max						C-Max	Max	
Walk Time (s)	5.0								
Flash Dont Walk (s)	8.0								
Pedestrian Calls (#/hr)	0								
Act Effct Green (s)	30.0			79.0					
Actuated g/C Ratio	0.25			0.66					
v/c Ratio	0.62			0.52					
Control Delay	2.8			11.7					
Queue Delay	1.0			0.0					
Total Delay	3.7			11.7					
LOS	А			В					
Approach Delay	3.7			11.7					
Approach LOS	A			В					
Queue Length 50th (ft)	5			221					
Queue Length 95th (ft)	0			272					

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SBL	SBR	SEL	SET	NWT	NWR	Ø2	Ø4		
75			217	59					
959			2188						
155			0						
0			0						
0			0						

Area Type: CBD

Cycle Length: 120

Lane Group
Internal Link Dist (ft)
Turn Bay Length (ft)
Base Capacity (vph)
Starvation Cap Reductn
Spillback Cap Reductn
Storage Cap Reductn
Reduced v/c Ratio

Actuated Cycle Length: 120

Offset: 16 (13%), Referenced to phase 2:WBT, Start of Green

0.74

Natural Cycle: 110

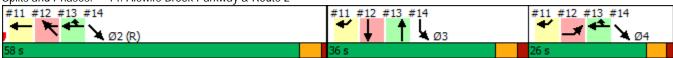
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.09

Intersection Signal Delay: 9.0 Intersection LOS: A Intersection Capacity Utilization 59.1% ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 14: Alewife Brook Parkway & Route 2



0.52

Lanes, Volumes, Timings 36: Minuteman Commuter Bikeway & Lake Street

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					†							
Traffic Volume (vph)	0	625	0	0	1166	0	0	0	0	0	0	0
Future Volume (vph)	0	625	0	0	1166	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	15	16	16	16	12	12	12	12	12	12
Grade (%)		0%			0%		· <u>-</u>	0%	<u> </u>		0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		-
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		135			215			175			206	
Travel Time (s)		3.1			4.9			4.0			4.7	
Lane Group Flow (vph)	0	744	0	0	1202	0	0	0	0	0	0	0
Turn Type	_	NA	-	_	NA	-	-	-	-	-	_	-
Protected Phases		2			6							
Permitted Phases		_			_							
Detector Phase		2			6							
Switch Phase		_										
Minimum Initial (s)		4.0			4.0							
Minimum Split (s)		20.5			20.5							
Total Split (s)		47.0			47.0							
Total Split (%)		67.1%			67.1%							
Maximum Green (s)		42.5			42.5							
Yellow Time (s)		3.5			3.5							
All-Red Time (s)		1.0			1.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		4.5			4.5							
Lead/Lag		110										
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0			3.0							
Minimum Gap (s)		3.0			3.0							
Time Before Reduce (s)		0.0			0.0							
Time To Reduce (s)		0.0			0.0							
Recall Mode		C-Max			C-Max							
Walk Time (s)		o man			o man							
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		47.5			47.5							
Actuated g/C Ratio		0.68			0.68							
v/c Ratio		0.54			0.82							
Control Delay		7.4			17.3							
Queue Delay		53.2			50.3							
Total Delay		60.6			67.7							
LOS		E			E							
Approach Delay		60.6			67.7							
Approach LOS		E			E							
Queue Length 50th (ft)		134			571							
Queue Length 95th (ft)		182			m580							
Zucuc Longin 73in (ii)		102			111000							

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Right Turn on Red	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	,
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
	18.0
Minimum Split (s)	
Total Split (s)	23.0
Total Split (%)	33%
Maximum Green (s)	21.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Minimum Gap (s)	3.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	311
Act Effct Green (s)	311
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		55			135			95			126	
Turn Bay Length (ft)												
Base Capacity (vph)		1390			1460							
Starvation Cap Reductn		0			729							
Spillback Cap Reductn		812			0							
Storage Cap Reductn		0			0							
Reduced v/c Ratio		1.29			1.64							
Intersection Summary												
Area Type: (Other											
Cycle Length: 70												
Actuated Cycle Length: 70												
Offset: 16 (23%), Referenced	d to phase	2:EBT ar	d 6:WBT	, Start of	Green							
Natural Cycle: 60												
Control Type: Actuated-Coor	dinated											
Maximum v/c Ratio: 0.82												
Intersection Signal Delay: 65					tersectior							
Intersection Capacity Utilizat	ion 65.1%			IC	:U Level o	of Service	С					
Analysis Period (min) 15												
m Volume for 95th percent	ile queue i	s metered	l by upstr	eam sign	al.							
Splits and Phases: 36: Mir	nuteman C	ommuter	Bikeway	& Lake S	treet							
→ø2 (R)			<u> </u>					#N _{Ø9}				
47 s								23 s				

Lane Group	Ø9
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

	۶	→	•	•	←	•	•	†	<i>></i>	/	↓	✓
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Volume (vph)	31	548	46	6	1007	0	38	4	5	3	7	121
Future Volume (vph)	31	548	46	6	1007	0	38	4	5	3	7	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	14	13	13	13	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		215			1126			206			208	
Travel Time (s)		4.9			25.6			4.7			4.7	
Lane Group Flow (vph)	0	687	0	0	1164	0	0	63	0	0	168	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	-	Perm	NA	-
Protected Phases		2			6		3	8			4	
Permitted Phases	2	_		6			8			4	•	
Detector Phase	2	2		6	6		3	8		4	4	
Switch Phase	_	_		J	J					•	•	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.5	20.5		20.5	20.5		8.5	14.0		13.0	13.0	
Total Split (s)	27.0	27.0		27.0	27.0		10.0	23.0		13.0	13.0	
Total Split (%)	38.6%	38.6%		38.6%	38.6%		14.3%	32.9%		18.6%	18.6%	
Maximum Green (s)	22.5	22.5		22.5	22.5		5.5	18.5		8.5	8.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		4.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		0.5	1.5		1.5	1.5	
Lost Time Adjust (s)	1.0	0.0		1.0	0.0		0.0	0.0		1.0	0.0	
Total Lost Time (s)		4.5			4.5			4.5			4.5	
Lead/Lag		7.0			4.0		Lead	4.0		Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0			0.0			0.0	0.0		0.0	0.0	
Recall Mode		C-Max			C-Max		None	Min		Min	Min	
Walk Time (s)	O Wax	O Wax		O Wax	O IVIUX		TVOTIC	IVIIII		IVIIII	IVIIII	
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		40.9			40.9			9.3			9.3	
Actuated g/C Ratio		0.58			0.58			0.13			0.13	
v/c Ratio		0.64			1.03			0.50			0.48	
Control Delay		23.5			56.8			38.1			10.7	
Queue Delay		33.2			30.2			0.0			0.4	
Total Delay		56.7			87.0			38.1			11.2	
LOS		50.7 E			67.0 F			D			11.2 B	
Approach Delay		56.7			87.0			38.1			11.2	
Approach LOS		30.7 E			67.0 F			30.1 D			11.2 B	
Queue Length 50th (ft)		249			~637			23			5	
Queue Length 95th (ft)		#448			#879			44			35	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes Taper Length (ff)	
Taper Length (ft)	
Right Turn on Red	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Lane Group Flow (vph)	
Turn Type	2
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	18.0
Total Split (s)	20.0
Total Split (%)	29%
Maximum Green (s)	18.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Minimum Gap (s)	3.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	52
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach LOS	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	

	7	-	•	•	•	•	1	T		-	¥	*
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		135			1046			126			128	
Turn Bay Length (ft)												
Base Capacity (vph)		1066			1132			245			372	
Starvation Cap Reductn		412			0			0			0	
Spillback Cap Reductn		0			480			1			38	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		1.05			1.79			0.26			0.50	

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green, Master Intersection

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.03

Intersection Signal Delay: 69.4 Intersection LOS: E
Intersection Capacity Utilization 77.5% ICU Level of Service D

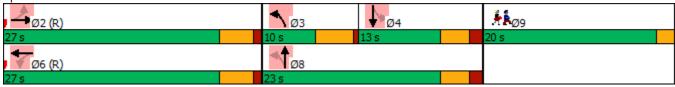
Analysis Period (min) 15

Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 39: Brooks Avenue & Lake Street



Lane Group	Ø9		
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	- 1>			र्स	¥	
Traffic Vol, veh/h	621	3	1	1201	5	1
Future Vol, veh/h	621	3	1	1201	5	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage,	# 0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	87	87	75	75
Heavy Vehicles, %	2	0	0	1	0	0
Mymt Flow	828	4	1	1380	7	1
	020			1000	-	
	lajor1	١	/lajor2		Minor1	
Conflicting Flow All	0	0	832	0	2212	830
Stage 1	-	-	-	-	830	-
Stage 2	-	-	-	-	1382	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	809	-	49	373
Stage 1	-	-	-	-	432	-
Stage 2	-	-	-	-	235	-
Platoon blocked, %	_	-				
Mov Cap-1 Maneuver	_	_	809	_	49	373
Mov Cap 1 Maneuver	_	_	-	_	49	-
Stage 1	_			_	432	_
Stage 2			_		234	-
Staye 2	-	-	-	-	234	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		78.2	
HCM LOS					F	
		IDI. 1		ED5	14.5	14/5-
Minor Lane/Major Mvmt	1	VBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)		57	-	-	809	-
HCM Lane V/C Ratio		0.14	-	-	0.001	-
HCM Control Delay (s)		78.2	-	-	9.5	0
HCM Lane LOS		F	-	-	Α	Α
HCM 95th %tile Q(veh)		0.5	-	-	0	-

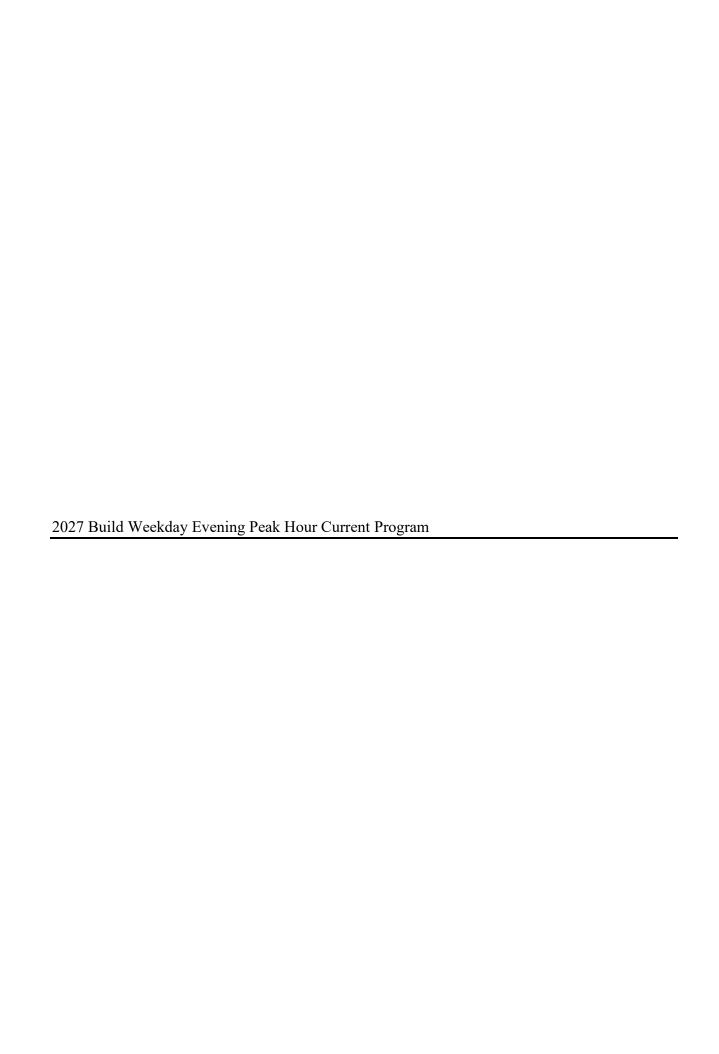
Intersection						
Int Delay, s/veh	4.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	ħ			4	¥	
Traffic Vol, veh/h	608	14	5	1166	36	6
Future Vol, veh/h	608	14	5	1166	36	6
Conflicting Peds, #/hr	0	0	0	0	0	0
	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None			-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	# 0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	93	93	75	75
Heavy Vehicles, %	2	0	0	1	0	0
Mvmt Flow	811	19	5	1254	48	8
	-	-				-
Mojor/Min	014		101-0		No.	
	ajor1		Major2		Minor1	001
Conflicting Flow All	0	0	830	0	2085	821
Stage 1	-	-	-	-	821	-
Stage 2	-	-	-	-	1264	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	811	-	59	378
Stage 1	-	-	-	-	436	-
Stage 2	-	-	-	-	268	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	811	-	58	378
Mov Cap-2 Maneuver	-	-	-	-	58	-
Stage 1	-	-	-	-	436	-
Stage 2	-	-	-	-	263	-
Annreach	ED		MD		MD	
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		173.7	
HCM LOS					F	
Minor Lane/Major Mvmt	N	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)		66	-	-	811	-
HCM Lane V/C Ratio		0.848	-		0.007	_
HCM Control Delay (s)		173.7			9.5	0
HCM Lane LOS		F	_	_	Λ.5	A
HCM 95th %tile Q(veh)		4	-	_	0	-

Intersection						
Int Delay, s/veh	0.4					
	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	Þ			सी	¥	
Traffic Vol, veh/h	609	5	3	1164	7	1
Future Vol, veh/h	609	5	3	1164	7	1
Conflicting Peds, #/hr	0	0	0	0	0	0
	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage,	# 0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	93	93	75	75
Heavy Vehicles, %	2	0	0	1	0	0
Mymt Flow	812	7	3	1252	9	1
IVIVIII I IOVV	UIZ		- 3	1202	-	ı
	ajor1	١	/lajor2	N	Minor1	
Conflicting Flow All	0	0	819	0	2074	816
Stage 1	-	-	-	-	816	-
Stage 2	-	-	-	-	1258	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	_	5.4	-
Follow-up Hdwy	_		2.2	_	3.5	3.3
Pot Cap-1 Maneuver	_	_	818	_	60	380
Stage 1		_	-	_	438	-
Stage 2				_	270	_
Platoon blocked, %	-		_	-	210	_
	-	-	818		59	380
Mov Cap 2 Manager	-			-		
Mov Cap-2 Maneuver	-	-	-	-	59	-
Stage 1	-	-	-	-	438	-
Stage 2	-	-	-	-	267	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		69.8	
HCM LOS	U		U		09.0 F	
HOW LOS					Г	
Minor Lane/Major Mvmt	1	VBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)		66	-	-	818	-
HCM Lane V/C Ratio		0.162	-	-	0.004	-
HCM Control Delay (s)		69.8	_	_	9.4	0
HCM Lane LOS		F	_		Α	A
HCM 95th %tile Q(veh)		0.5	-	_	0	-
1.5W 75W 75W 2(VCII)		0.0			U	

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Vol, veh/h	0	592	18	8	1148	5	8	0	14	4	0	11
Future Vol, veh/h	0	592	18	8	1148	5	8	0	14	4	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage,	# -	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	96	96	96	80	80	80	92	92	92
Heavy Vehicles, %	0	1	0	0	0	0	0	0	10	0	0	0
Mvmt Flow	0	749	23	8	1196	5	10	0	18	4	0	12
Major/Minor N	/lajor1			Major2			Minor1			Minor2		
Conflicting Flow All	1201	0	0	772	0	0	1982	1978	761	1985	1987	1199
Stage 1	-	-	-	-	-	-	761	761	-	1215	1215	-
Stage 2	-	-	-	-	-	-	1221	1217	-	770	772	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.3	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.39	3.5	4	3.3
Pot Cap-1 Maneuver	588	-	-	852	-	-	47	63	393	46	62	228
Stage 1	-	-	-	-	-	-	401	417	-	224	256	-
Stage 2	-	-	-	-	-	-	222	256	-	396	412	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	588	-	-	852	-	-	44	61	393	43	60	228
Mov Cap-2 Maneuver	-	-	-	-	-	-	44	61	-	43	60	-
Stage 1	-	-	-	-	-	-	401	417	-	224	249	-
Stage 2	-	-	-	-	-	-	204	249	-	378	412	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			53.5			45		
HCM LOS				J. 1			55.5 F			E		
Minor Lane/Major Mvm	t N	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR S	SRI n1			
	. I					852						
Capacity (veh/h)		101	588	-	-		-	-	106			
HCM Control Dolay (c)		0.272	-	-	-	0.01	-		0.154			
HCM Lang LOS		53.5	0	-	-	9.3	0	-	45			
HCM Lane LOS HCM 95th %tile Q(veh)		F 1	A	-	-	A 0	А		0.5			
ncivi yotii %tile Q(ven)		I	0	-	-	U	-	-	0.5			

Intersection												
Int Delay, s/veh	5.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Vol, veh/h	3	593	14	27	1136	3	9	0	29	3	0	16
Future Vol, veh/h	3	593	14	27	1136	3	9	0	29	3	0	16
Conflicting Peds, #/hr	0	0	0	304	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage,	# -	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	97	97	97	75	75	75	75	75	75
Heavy Vehicles, %	0	2	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	4	706	17	28	1171	3	12	0	39	4	0	21
Major/Minor V	1ajor1			Major2		N	Minor1		N	Minor2		
	1174	0			0			2257	1019		2264	1173
Conflicting Flow All	11/4	0	0	1027		0	2266 1027	1027		1971 1229	1229	
Stage 1	-	-		-	-	-	1027	1027	-	742	1035	-
Stage 2	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy		-		4.1	-	-	6.1	5.5	0.2	6.1	5.5	0.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5		6.1	5.5	
Critical Hdwy Stg 2	2.2	-	-	2.2	-	-	3.5		2 2	3.5		2.2
Follow-up Hdwy	602	-	-	684	-	-		42	3.3	3.5 47	41	3.3
Pot Cap-1 Maneuver		-	-	084	-	-	29 285	314	290	220	252	236
Stage 1	-	-	-	-	-	-		252	-	411	312	-
Stage 2 Platoon blocked, %	-	-	-	-	-	-	217	252	-	411	312	-
	602	-	-	511	-	-	17	26	217	34	26	236
Mov Cap-1 Maneuver				511	-	-	17	26		34	26	
Mov Cap-2 Maneuver	-	-	-	-	-	-	210	232	-	218	212	-
Stage 1				-	-	-	166	232	-	334	212	-
Stage 2	-	-	-	-	-	-	100	Z1Z	-	JJ4	231	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.3			204.1			42.1		
HCM LOS							F			Ε		
Minor Lane/Major Mvmt		NBLn1	EBL	EBT	EBR	WBL	WBT	WBR S	SRI n1			
Capacity (veh/h)		57	602	LUI	LDIX	511	-	- 1001				
HCM Lane V/C Ratio		0.889	0.006	-		0.054	-		0.208			
		204.1	11	0		12.4		-				
HCM Control Delay (s) HCM Lane LOS					-		0					
		F	В	A	-	0.2	А	-	E 0.7			
HCM 95th %tile Q(veh)		4	0	-	-	0.2	-	-	0.7			

	•	→	—	4	>	4
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		र्स	ĵ»		W	
Traffic Volume (veh/h)	12	7	19	30	19	0
Future Volume (Veh/h)	12	7	19	30	19	0
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	8	21	33	21	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	86	42	42	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	86	42	42	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	98	99	98	97	99	
cM capacity (veh/h)	853	843	843	1091	1636	
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	21	54	21			
Volume Left	13	0	21			
Volume Right	0	33	0			
cSH	849	979	1636			
Volume to Capacity	0.02	0.06	0.01			
Queue Length 95th (ft)	2	4	1			
Control Delay (s)	9.3	8.9	7.2			
Lane LOS	А	А	А			
Approach Delay (s)	9.3	8.9	7.2			
Approach LOS	А	Α				
Intersection Summary						
Average Delay			8.6			
Intersection Capacity Utiliza	ation		17.7%	IC	III evel d	of Service
Analysis Period (min)			17.770		CECVOIC	// JOI VICO
Analysis r chou (IIIIII)			10			



	y	-	\mathbf{x}	4	*	×		
Lane Group	EBL	EBR	SET	SER	NWL	NWT	Ø9	
Lane Configurations	ሻ	7	^	7	ሻ	†		
Traffic Volume (vph)	432	280	658	192	352	739		
Future Volume (vph)	432	280	658	192	352	739		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	16	16	11	10	11	12		
Grade (%)	0%		0%			0%		
Storage Length (ft)	0	100		55	150			
Storage Lanes	1	1		1	1			
Taper Length (ft)	25				25			
Satd. Flow (prot)	2046	1830	3421	1507	1745	1863		
Flt Permitted	0.950				0.220			
Satd. Flow (perm)	2046	1830	3421	1507	404	1863		
Right Turn on Red		Yes		Yes				
Satd. Flow (RTOR)		140		87				
Link Speed (mph)	30		30	0,		30		
Link Distance (ft)	1126		640			645		
Travel Time (s)	25.6		14.5			14.7		
Lane Group Flow (vph)	491	318	715	209	383	803		
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA		
Protected Phases	4	1 01111	6	1 01111	5	2	9	
Permitted Phases	•	4	J	6	2	_	•	
Detector Phase	4	4	6	6	5	2		
Switch Phase	•	•				_		
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	23.0	23.0	23.0	23.0	10.0	23.0	19.0	
Total Split (s)	29.0	29.0	38.0	38.0	15.0	53.0	23.0	
Total Split (%)	27.6%	27.6%	36.2%	36.2%	14.3%	50.5%	22%	
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	4.0	2.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	7.0	7.0	7.0	7.0	6.0	7.0		
Lead/Lag			Lag	Lag	Lead			
Lead-Lag Optimize?			Yes	Yes	Yes			
Recall Mode	None	None	Max	Max	None	Max	None	
Act Effct Green (s)	22.2	22.2	31.3	31.3	47.5	46.5		
Actuated g/C Ratio	0.24	0.24	0.34	0.34	0.51	0.50		
v/c Ratio	1.01	0.59	0.62	0.37	1.14	0.87		
Control Delay	81.8	23.6	30.4	17.2	116.1	34.8		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	81.8	23.6	30.4	17.2	116.1	34.8		
LOS	F	С	С	В	F	С		
Approach Delay	58.9		27.4			61.1		
Approach LOS	E		С			E		
Queue Length 50th (ft)	~362	102	211	59	~224	480		
Queue Length 95th (ft)	#541	188	277	124	#433	#740		
Internal Link Dist (ft)	1046		560			565		
Turn Bay Length (ft)		100		55	150			
Base Capacity (vph)	486	542	1147	562	335	927		
Starvation Cap Reductn	0	0	0	0	0	0		



Lane Group	EBL	EBR	SET	SER	NWL	NWT	Ø9
Spillback Cap Reductn	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	
Reduced v/c Ratio	1.01	0.59	0.62	0.37	1.14	0.87	

Area Type: Other

Cycle Length: 105

Actuated Cycle Length: 93.4

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.14

Intersection Signal Delay: 49.8
Intersection Capacity Utilization 78.3%

Intersection LOS: D
ICU Level of Service D

Analysis Period (min) 15

Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: Massachusetts Aevnue/Massachusetts Avenue & Lake Street



	-	•	•	•	₹I	•	<i>></i>
Lane Group	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations	<u> </u>	7	ሻ	^	NDO	Ä	7
Traffic Volume (vph)	547	181	172	304	14	531	642
Future Volume (vph)	547	181	172	304	14	531	642
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	10	1700	12	16	14
Grade (%)	0%	10	10	0%	12	0%	17
Storage Length (ft)	070	150	110	070		0	0
Storage Lanes		1	1			1	1
Taper Length (ft)			25			25	•
Satd. Flow (prot)	2153	1664	1652	3490	0	2046	1723
Flt Permitted		1301	0.950	3170		0.950	1,20
Satd. Flow (perm)	2153	1664	1652	3490	0	2046	1723
Right Turn on Red		Yes	1302	3170		2010	Yes
Satd. Flow (RTOR)		70					448
Link Speed (mph)	30	70		30		30	110
Link Distance (ft)	239			505		387	
Travel Time (s)	5.4			11.5		8.8	
Lane Group Flow (vph)	582	193	198	349	0	568	669
Turn Type	NA	Free	Prot	NA	Perm	Prot	Perm
Protected Phases	4	1100	3	8	i Cilli	2	1 (1111
Permitted Phases	Т.	Free	J	U	2		2
Detector Phase	4	1100	3	8	2	2	2
Switch Phase	7		3	U	2	2	2
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0		9.0	21.0	21.0	21.0	21.0
Total Split (s)	74.0		25.0	99.0	21.0	21.0	21.0
Total Split (%)	61.7%		20.8%	82.5%	17.5%	17.5%	17.5%
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	2.0	0.0	0.0
Total Lost Time (s)	5.0		5.0	5.0		5.0	5.0
Lead/Lag	Lag		Lead	5.0		5.0	5.0
Lead-Lag Optimize?	Yes		Yes				
Recall Mode	None		None	None	Max	Max	Max
Act Effct Green (s)	25.8	71.6	14.1	45.0	IVIAN	16.3	16.3
Actuated g/C Ratio	0.36	1.00	0.20	0.63		0.23	0.23
v/c Ratio	0.30	0.12	0.20	0.03		1.22	0.23
Control Delay	27.0	0.12	36.2	5.3		1.22	28.9
•	0.0	0.1	0.0	0.0		0.0	0.0
Queue Delay	27.0	0.0	36.2	5.3		145.5	28.9
Total Delay LOS							
	C 20.2	А	D	A 16.5		92 /	С
Approach LOS	20.3			16.5		82.4	
Approach LOS	C 216	0	00	B 20		716	02
Queue Length 50th (ft)	216	0	80 157	28		~316	93
Queue Length 95th (ft)	362	0	157	40		#635	#370
Internal Link Dist (ft)	159	150	110	425		307	
Turn Bay Length (ft)	1000	150	110	2.400		4/7	700
Base Capacity (vph)	1999	1664	471	3490		467	739
Starvation Cap Reductn	0	0	0	0		0	0

	-	*	•	•	₹I	7	
Lane Group	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Spillback Cap Reductn	0	0	0	0		0	0
Storage Cap Reductn	0	0	0	0		0	0
Reduced v/c Ratio	0.29	0.12	0.42	0.10		1.22	0.91

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 71.6

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.22

Intersection Signal Delay: 49.5 Intersection LOS: D
Intersection Capacity Utilization 81.0% ICU Level of Service D

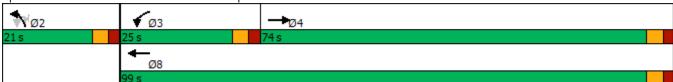
Analysis Period (min) 15

Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: Route 2 EB On/Off Ramps & Lake Street



	>	→	74	~	←	*_	\	×	4	*	*	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations	7	†			†	7				7	ર્ન	7
Traffic Volume (vph)	368	821	0	0	268	353	0	0	0	208	22	27
Future Volume (vph)	368	821	0	0	268	353	0	0	0	208	22	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	11	10	12	12	12	11	12	16
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	250		0	0		75	0		0	100		0
Storage Lanes	1		0	0		1	0		0	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1805	1881	0	0	1801	1463	0	0	0	1641	1705	1830
Flt Permitted	0.950									0.950	0.961	
Satd. Flow (perm)	1805	1881	0	0	1801	1463	0	0	0	1641	1705	1830
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						388						136
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		505			380			459			529	
Travel Time (s)		11.5			8.6			10.4			12.0	
Lane Group Flow (vph)	418	933	0	0	295	388	0	0	0	120	122	28
Turn Type	Prot	NA			NA	Perm				Split	NA	Perm
Protected Phases	7	4			8					2	2	
Permitted Phases						8						2
Detector Phase	7	4			8	8				2	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0			4.0	4.0				4.0	4.0	4.0
Minimum Split (s)	8.5	22.0			22.0	22.0				22.0	22.0	22.0
Total Split (s)	16.0	38.0			22.0	22.0				22.0	22.0	22.0
Total Split (%)	26.7%	63.3%			36.7%	36.7%				36.7%	36.7%	36.7%
Yellow Time (s)	4.0	4.0			4.0	4.0				4.0	4.0	4.0
All-Red Time (s)	0.5	2.0			2.0	2.0				2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0				0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0			6.0	6.0				6.0	6.0	6.0
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Recall Mode	None	None			None	None				Max	Max	Max
Act Effct Green (s)	11.5	31.0			14.9	14.9				16.0	16.0	16.0
Actuated g/C Ratio	0.19	0.53			0.25	0.25				0.27	0.27	0.27
v/c Ratio	1.19	0.95			0.65	0.59				0.27	0.26	0.05
Control Delay	137.4	33.9			27.1	6.5				19.4	19.3	0.1
Queue Delay	0.0	0.0			0.0	0.0				0.0	0.0	0.0
Total Delay	137.4	33.9			27.1	6.5				19.4	19.3	0.1
LOS	F	С			С	А				В	В	А
Approach Delay	•	65.9			15.4	, ,					17.4	,
Approach LOS		E			В						В	
Queue Length 50th (ft)	~191	283			93	0				35	36	0
Queue Length 95th (ft)	#331	#515			165	57				75	76	0
Internal Link Dist (ft)	# JJ 1	425			300	37		379		, ,	449	J
Turn Bay Length (ft)	250	120			300	75		017		100	117	
Base Capacity (vph)	351	1021			489	679				445	462	595
Starvation Cap Reductn	0	0			0	0/9				0	0	0
Starvation Cap Reductiff	U	U			U	U				U	U	<u> </u>

	>	-	74	~	←	*_	\	×	4	1	×	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Spillback Cap Reductn	0	0			0	0				0	0	0
Storage Cap Reductn	0	0			0	0				0	0	0
Reduced v/c Ratio	1.19	0.91			0.60	0.57				0.27	0.26	0.05

Area Type: Other

Cycle Length: 60 Actuated Cycle Length: 59

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.19

Intersection Signal Delay: 45.2 Intersection LOS: D
Intersection Capacity Utilization 62.3% ICU Level of Service B

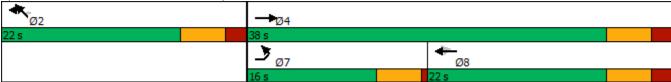
Analysis Period (min) 15

Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 7: Route 2 WB Off Ramp & Lake Street



	≠	→	←	€	6	4			
Lane Group	EBL	EBT	WBT	WBR	SWL	SWR	Ø3	Ø4	
Lane Configurations			^ ^			77			
Traffic Volume (vph)	0	0	2211	0	0	1131			
Future Volume (vph)	0	0	2211	0	0	1131			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Lane Width (ft)	13	13	13	13	13	13			
Grade (%)	13	0%	0%	13	0%	13			
Storage Length (ft)	0	070	070	0	070	0			
Storage Lanes	0			0	0	2			
Taper Length (ft)	25			U	25	2			
Satd. Flow (prot)	0	0	4776	0	0	2617			
Flt Permitted	U	U	4//0	U	U	2017			
	Λ	0	4776	0	0	2617			
Satd. Flow (perm)	0	U	4//0	0 Yes	0	Yes			
Right Turn on Red				Yes					
Satd. Flow (RTOR)		20	20		20	1			
Link Speed (mph)		30	30		30				
Link Distance (ft)		201	192		296				
Travel Time (s)	0	4.6	4.4	0	6.7	4454			
Lane Group Flow (vph)	0	0	2279	0	0	1154			
Turn Type			NA			custom	0		
Protected Phases			2			3 4	3	4	
Permitted Phases									
Detector Phase			2			3 4			
Switch Phase									
Minimum Initial (s)			10.0				10.0	10.0	
Minimum Split (s)			15.0				19.0	15.0	
Total Split (s)			58.0				36.0	26.0	
Total Split (%)			48.3%				30%	22%	
Yellow Time (s)			4.0				4.0	3.5	
All-Red Time (s)			1.0				2.0	1.5	
Lost Time Adjust (s)			0.0						
Total Lost Time (s)			5.0						
Lead/Lag							Lead	Lag	
Lead-Lag Optimize?									
Recall Mode			C-Max				Max	Max	
Act Effct Green (s)			53.0			56.0			
Actuated g/C Ratio			0.44			0.47			
v/c Ratio			1.08			0.95			
Control Delay			47.1			46.7			
Queue Delay			1.5			0.0			
Total Delay			48.7			46.7			
LOS			D			D			
Approach Delay			48.7		46.7				
Approach LOS			D		D				
Queue Length 50th (ft)			~704			472			
Queue Length 95th (ft)			m#56			#644			
Internal Link Dist (ft)		121	112		216				
Turn Bay Length (ft)		121	. 12		210				
Base Capacity (vph)			2109			1221			
Starvation Cap Reductn			7			0			
Star vation Cap Reductif			,			U			



Lane Group	EBL	EBT	WBT	WBR	SWL	SWR	Ø3	Ø4	
Spillback Cap Reductn			0			0			
Storage Cap Reductn			0			0			
Reduced v/c Ratio			1.08			0.95			

Area Type: CBD

Cycle Length: 120 Actuated Cycle Length: 120

Offset: 16 (13%), Referenced to phase 2:WBT, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.19

Intersection Signal Delay: 48.0 Intersection LOS: D
Intersection Capacity Utilization 100.6% ICU Level of Service G

Analysis Period (min) 15

Volume exceeds capacity, queue is theoretically infinite.

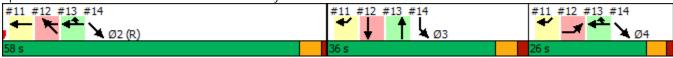
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

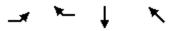
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: Route 2/Alewife Brook Parkway & Route 16



	#	*	ļ	*
Lane Group	EBL	WBR	SBT	NWT
Lane Configurations	ሻሻ	7	^	^
Traffic Volume (vph)	610	591	250	1620
\ 1 <i>/</i>				
Future Volume (vph)	610	591	250	1620
Ideal Flow (vphpl)	1900	1900	1900	1900
Lane Width (ft)	13	16	13	13
Grade (%)			0%	0%
Storage Length (ft)	0	0		
Storage Lanes	2	1		
Taper Length (ft)	25			
Satd. Flow (prot)	3257	1660	3291	3324
Flt Permitted	0.950			
Satd. Flow (perm)	3257	1660	3291	3324
Right Turn on Red	0_0.	,,,,,		
Satd. Flow (RTOR)				
Link Speed (mph)			30	30
Link Distance (ft)			202	278
` '				
Travel Time (s)	/70	(00	4.6	6.3
Lane Group Flow (vph)	678	622	255	1670
Turn Type	Prot	Prot	NA	NA
Protected Phases	4	2!	3	2!
Permitted Phases				
Detector Phase	4	2	3	2
Switch Phase				
Minimum Initial (s)	10.0	10.0	10.0	10.0
Minimum Split (s)	15.0	15.0	19.0	15.0
Total Split (s)	26.0	58.0	36.0	58.0
Total Split (%)	21.7%	48.3%	30.0%	48.3%
Yellow Time (s)	3.5	4.0	4.0	4.0
. ,				
All-Red Time (s)	1.5	1.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	5.0
Lead/Lag	Lag		Lead	
Lead-Lag Optimize?				
Recall Mode	Max	C-Max	Max	C-Max
Act Effct Green (s)	21.0	53.0	30.0	53.0
Actuated g/C Ratio	0.18	0.44	0.25	0.44
v/c Ratio	1.19	0.85	0.31	1.14
Control Delay	145.7	29.8	37.8	103.1
Queue Delay	0.0	3.3	0.0	0.3
Total Delay	145.7	33.1	37.8	103.3
LOS		33.1 C	37.0 D	103.3 F
	F	C		
Approach Delay			37.8	103.3
Approach LOS			D	F
Queue Length 50th (ft)	~326	422	84	~794
Queue Length 95th (ft)	#446	#639	123	#933
Internal Link Dist (ft)			122	198
Turn Bay Length (ft)				
Base Capacity (vph)	569	733	822	1468
Starvation Cap Reductn	0	0	0	0
Starvation Cap Reductif	U	U	U	U

07/26/2021



Lane Group	EBL	WBR	SBT	NWT	
Spillback Cap Reductn	0	53	0	107	
Storage Cap Reductn	0	0	0	0	
Reduced v/c Ratio	1.19	0.91	0.31	1.23	

Intersection Summary

Area Type: CBD

Cycle Length: 120 Actuated Cycle Length: 120

Offset: 16 (13%), Referenced to phase 2:WBT, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.19

Intersection Signal Delay: 93.5 Intersection LOS: F
Intersection Capacity Utilization 134.8% ICU Level of Service H

Analysis Period (min) 15

Volume exceeds capacity, queue is theoretically infinite.

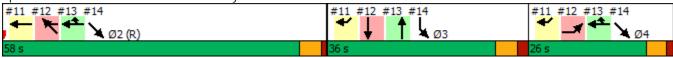
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

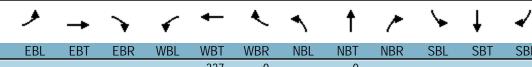
! Phase conflict between lane groups.

Splits and Phases: 12: Alewife Brook Parkway & Route 2



	۶	→	•	•	←	•	4	†	/	>	ļ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					†	7		^				
Traffic Volume (vph)	0	0	0	0	591	328	0	238	0	0	0	0
Future Volume (vph)	0	0	0	0	591	328	0	238	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		200	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	0	0	0	1693	1439	0	3217	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	1693	1439	0	3217	0	0	0	0
Right Turn on Red			No			No	No		No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		161			1225			227			185	
Travel Time (s)		3.7			27.8			5.2			4.2	
Lane Group Flow (vph)	0	0	0	0	622	345	0	245	0	0	0	0
Turn Type					NA	Prot		NA				
Protected Phases					2 4	2 4		3				
Permitted Phases												
Detector Phase					2 4	2 4		3				
Switch Phase												
Minimum Initial (s)								10.0				
Minimum Split (s)								19.0				
Total Split (s)								36.0				
Total Split (%)								30.0%				
Yellow Time (s)								4.0				
All-Red Time (s)								2.0				
Lost Time Adjust (s)								0.0				
Total Lost Time (s)								6.0				
Lead/Lag								Lead				
Lead-Lag Optimize?												
Recall Mode								Max				
Act Effct Green (s)					79.0	79.0		30.0				
Actuated g/C Ratio					0.66	0.66		0.25				
v/c Ratio					0.56	0.36		0.30				
Control Delay					13.5	10.5		37.8				
Queue Delay					2.1	0.0		0.0				
Total Delay					15.6	10.5		37.8				
LOS					В	В		D				
Approach Delay					13.8			37.8				
Approach LOS					В			D				
Queue Length 50th (ft)					239	110		81				
Queue Length 95th (ft)					337	165		119				
Internal Link Dist (ft)		81			1145			147			105	
Turn Bay Length (ft)						200						
Base Capacity (vph)					1114	947		804				
Starvation Cap Reductn					0	0		0				

Lane Group	Ø2	Ø4
	WZ.	<u> </u>
Lane Configurations Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Grade (%)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	2	4
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	10.0	10.0
Minimum Split (s)	15.0	15.0
Total Split (s)	58.0	26.0
Total Split (%)	48%	22%
Yellow Time (s)	4.0	3.5
All-Red Time (s)	1.0	1.5
	1.0	1.5
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		Lag
Lead-Lag Optimize?	0.11	
Recall Mode	C-Max	Max
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Starvation Sup reductif		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn					337	0		0				
Storage Cap Reductn					0	0		0				
Reduced v/c Ratio					0.80	0.36		0.30				

Area Type: CBD

Cycle Length: 120 Actuated Cycle Length: 120

Offset: 16 (13%), Referenced to phase 2:WBT, Start of Green

Natural Cycle: 140

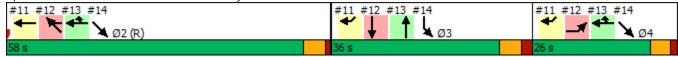
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.19

Intersection Signal Delay: 18.6 Intersection LOS: B
Intersection Capacity Utilization 52.1% ICU Level of Service A

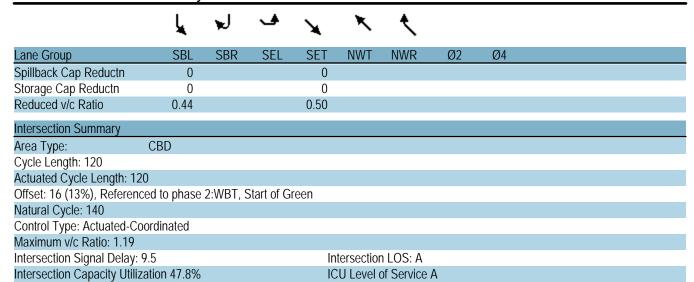
Analysis Period (min) 15

Splits and Phases: 13: Alewife Brook Parkway & Route 2/Rt 2 WB Access



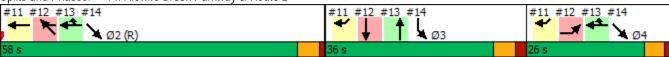
Lane Group	Ø2	Ø4	
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Interestion Cummers			
Intersection Summary			

	<u>L</u>	w	•	×	×	•			
Lane Group	SBL	SBR	SEL	SET	NWT	NWR	Ø2	Ø4	
Lane Configurations	75			^					
Traffic Volume (vph)	250	0	0	988	0	0			
Future Volume (vph)	250	0	0	988	0	0			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Lane Width (ft)	13	13	13	13	13	13			
Grade (%)	0%			0%	0%				
Storage Length (ft)	0	0	0			0			
Storage Lanes	2	0	0			0			
Taper Length (ft)	25		25						
Satd. Flow (prot)	3193	0	0	3324	0	0			
Flt Permitted	0.950			0021					
Satd. Flow (perm)	3193	0	0	3324	0	0			
Right Turn on Red	Yes	Yes		0021		Yes			
Satd. Flow (RTOR)	234	100				100			
Link Speed (mph)	30			30	30				
Link Distance (ft)	155			297	139				
Travel Time (s)	3.5			6.8	3.2				
Lane Group Flow (vph)	255	0	0	1098	0	0			
Turn Type	Prot	U	U	NA	U	U			
Protected Phases	3			2 4			2	4	
Permitted Phases	3			2 7			2	7	
Detector Phase	3			2 4					
Switch Phase	3			2 7					
Minimum Initial (s)	10.0						10.0	10.0	
Minimum Split (s)	19.0						15.0	15.0	
Total Split (s)	36.0						58.0	26.0	
Total Split (%)	30.0%						48%	22%	
Yellow Time (s)	4.0						4.0	3.5	
All-Red Time (s)	2.0						1.0	1.5	
Lost Time Adjust (s)	0.0						1.0	1.5	
Total Lost Time (s)	6.0								
Lead/Lag	Lead							Lag	
Lead-Lag Optimize?	Leau							Lay	
Recall Mode	Max						C-Max	Max	
Act Effct Green (s)	30.0			79.0			C-IVIAX	IVIAA	
Actuated g/C Ratio	0.25			0.66					
v/c Ratio	0.25			0.50					
Control Delay	0.20			11.4					
Queue Delay	0.6			0.0					
Total Delay	1.3			11.4					
LOS	1.5 A			11.4 B					
	1.3			11.4					
Approach Delay Approach LOS				11.4 B					
	A								
Queue Length 50th (ft)	0			210					
Queue Length 95th (ft)	1			258	Γ0				
Internal Link Dist (ft)	75			217	59				
Turn Bay Length (ft)	070			0100					
Base Capacity (vph)	973			2188					
Starvation Cap Reductn	391			0					



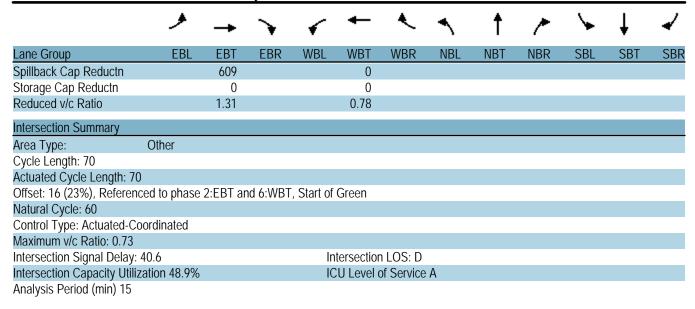
Splits and Phases: 14: Alewife Brook Parkway & Route 2

Analysis Period (min) 15



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		†			†							
Traffic Volume (vph)	0	857	0	0	660	0	0	0	0	0	0	0
Future Volume (vph)	0	857	0	0	660	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	15	16	16	16	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	2049	0	0	2153	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	2049	0	0	2153	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		135			215			175			206	
Travel Time (s)		3.1			4.9			4.0			4.7	
Lane Group Flow (vph)	0	1020	0	0	680	0	0	0	0	0	0	0
Turn Type		NA			NA							
Protected Phases		2			6							
Permitted Phases												
Detector Phase		2			6							
Switch Phase												
Minimum Initial (s)		4.0			4.0							
Minimum Split (s)		20.5			20.5							
Total Split (s)		47.0			47.0							
Total Split (%)		67.1%			67.1%							
Yellow Time (s)		3.5			3.5							
All-Red Time (s)		1.0			1.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		4.5			4.5							
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		C-Max			C-Max							
Act Effct Green (s)		47.5			47.5							
Actuated g/C Ratio		0.68			0.68							
v/c Ratio		0.73			0.47							
Control Delay		11.3			6.9							
Queue Delay		50.6			1.8							
Total Delay		61.8			8.6							
LOS		Е			Α							
Approach Delay		61.8			8.6							
Approach LOS		Е			Α							
Queue Length 50th (ft)		233			230							
Queue Length 95th (ft)		316			168							
Internal Link Dist (ft)		55			135			95			126	
Turn Bay Length (ft)												_
Base Capacity (vph)		1390			1460							
Starvation Cap Reductn		0			585							

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	9
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	18.0
Total Split (s)	23.0
Total Split (%)	33%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	0.0
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	None
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Queue Lengin 70in (II)	
Internal Link Diet (ft)	
Internal Link Dist (ft) Turn Bay Length (ft)	
Turn Bay Length (ft)	



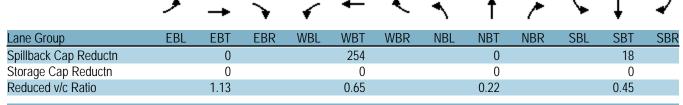
Splits and Phases: 36: Minuteman Commuter Bikeway & Lake Street



Lane Group	Ø9
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

	۶	→	•	•	←	•	•	†	~	/	↓	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Volume (vph)	82	705	70	6	537	1	15	5	7	0	5	108
Future Volume (vph)	82	705	70	6	537	1	15	5	7	0	5	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	14	13	13	13	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1994	0	0	1961	0	0	1786	0	0	1655	0
Flt Permitted		0.893			0.991			0.635				
Satd. Flow (perm)	0	1790	0	0	1946	0	0	1165	0	0	1655	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8						9			140	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		215			1126			206			208	
Travel Time (s)		4.9			25.6			4.7			4.7	
Lane Group Flow (vph)	0	974	0	0	618	0	0	36	0	0	146	0
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.5	20.5		20.5	20.5		14.0	14.0		14.0	14.0	
Total Split (s)	36.0	36.0		36.0	36.0		14.0	14.0		14.0	14.0	
Total Split (%)	51.4%	51.4%		51.4%	51.4%		20.0%	20.0%		20.0%	20.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.5			4.5			4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		C-Max	C-Max		Min	Min		Min	Min	
Act Effct Green (s)		43.2			43.2			7.0			7.0	
Actuated g/C Ratio		0.62			0.62			0.10			0.10	
v/c Ratio		0.88			0.52			0.29			0.50	
Control Delay		26.9			12.3			29.2			12.8	
Queue Delay		47.7			0.6			0.0			0.2	
Total Delay		74.6			12.9			29.2			13.0	
LOS		E			В			С			В	
Approach Delay		74.6			12.9			29.2			13.0	
Approach LOS		E			В			С			В	
Queue Length 50th (ft)		~281			174			11			2	
Queue Length 95th (ft)		#678			289			29			33	
Internal Link Dist (ft)		135			1046			126			128	
Turn Bay Length (ft)					. 5 10						.20	
Base Capacity (vph)		1107			1200			165			345	
Starvation Cap Reductn		247			0			0			0	
Starvation Cap Reductif		241			U			U			U	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	18.0
Total Split (s)	20.0
Total Split (%)	29%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	



Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green, Master Intersection

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 47.1 Intersection LOS: D
Intersection Capacity Utilization 94.0% ICU Level of Service F

Analysis Period (min) 15

Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 39: Brooks Avenue & Lake Street



Lane Group	Ø9
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
		LDIN	WDL		₩.	NDIX
Lane Configurations Traffic Vol, veh/h	♣ 845	2	1	€		1
		3	1	612	9	4
Future Vol, veh/h	845	3	1	612	9	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage,		-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	94	94	75	75
Heavy Vehicles, %	0	0	0	0	29	0
Mvmt Flow	1018	4	1	651	12	5
		•	•			
	lajor1	N	/lajor2		Minor1	
Conflicting Flow All	0	0	1022	0	1673	1020
Stage 1	-	-	-	-	1020	-
Stage 2	-	-	-	-	653	-
Critical Hdwy	_	_	4.1	-	6.69	6.2
Critical Hdwy Stg 1	_	_	_	_	5.69	-
Critical Hdwy Stg 2	_		_	-	5.69	_
Follow-up Hdwy		_	2.2		3.761	3.3
Pot Cap-1 Maneuver	-	-	687	-	90	290
Stage 1	-	-	-	-	310	-
Stage 2	-	-	-	-	470	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	687	-	90	290
Mov Cap-2 Maneuver	-	-	-	-	90	-
Stage 1	-	-	-	-	310	-
Stage 2	-		-	-	469	-
J -						
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		42.2	
HCM LOS					Е	
Minor Lane/Major Mvmt		NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)		114	-	-	687	-
HCM Lane V/C Ratio		0.152	-		0.002	-
HCM Control Delay (s)		42.2	-	-	10.2	0
HCM Lane LOS		Е	-	-	В	Α
HCM 95th %tile Q(veh)		0.5	-	-	0	-

Intersection						
Int Delay, s/veh	1.2					
		EDD	WDI	WDT	NDI	NDD
	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	^	,		ન	\	
Traffic Vol, veh/h	843	6	9	588	25	5
Future Vol, veh/h	843	6	9	588	25	5
Conflicting Peds, #/hr	0	_ 0	0	0	0	0
	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, a		-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	89	89	75	75
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	969	7	10	661	33	7
Major/Minor Ma	olor1	_ ^	//oior2		linor1	
	ajor1		Major2		Minor1	070
Conflicting Flow All	0	0	976	0	1654	973
Stage 1	-	-	-	-	973	-
Stage 2	-	-	-	-	681	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	715	-	109	309
Stage 1	-	-	-	-	370	-
Stage 2	-	-	-	-	506	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	715	-	107	309
Mov Cap-2 Maneuver	-	-	-	-	107	-
Stage 1	-	-	-	-	370	-
Stage 2	-		_		495	_
5.0g0 2					.,,	
	E5.		14.5			
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.2		49.3	
HCM LOS					Е	
Minor Lane/Major Mvmt	N	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	<u> </u>	120	-	LDIK	715	1101
HCM Lane V/C Ratio		0.333		•	0.014	-
			-		10.1	-
HCM Lang LOS		49.3	-	-		0
HCM Lane LOS HCM 95th %tile Q(veh)		1.3	-	-	B 0	Α
		1 4	-			-

Intersection						
Int Delay, s/veh	0.3					
	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	Þ			4	¥	
Traffic Vol, veh/h	847	1	1	591	6	4
Future Vol, veh/h	847	1	1	591	6	4
Conflicting Peds, #/hr	0	0	0	0	0	0
	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage,	# 0	-	-	0	0	-
Grade, %	0	_	_	0	0	_
Peak Hour Factor	87	87	89	89	75	75
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	974	1	1	664	8	5
IVIVIIIL I IUW	714			004	0	3
Major/Minor Ma	ajor1	Λ	/lajor2	ľ	Minor1	
Conflicting Flow All	0	0	975	0	1641	975
Stage 1	-	-	-	-	975	-
Stage 2	_	_	_	_	666	_
Critical Hdwy	_	_	4.1	_	6.4	6.2
Critical Hdwy Stg 1	_	_	-	_	5.4	- 0.2
Critical Hdwy Stg 2	_		_	_	5.4	_
Follow-up Hdwy	-		2.2	-	3.5	3.3
Pot Cap-1 Maneuver		-	716		3.5 111	308
	-			-		
Stage 1	-	-	-	-	369	-
Stage 2	-	-	-	-	515	-
Platoon blocked, %	-	-		-	4	0.5.5
Mov Cap-1 Maneuver	-	-	716	-	111	308
Mov Cap-2 Maneuver	-	-	-	-	111	-
Stage 1	-	-	-	-	369	-
Stage 2	-	-	-	-	514	-
Approach	EB		WB		NB	
Approach						
HCM Control Delay, s	0		0		31.5	
HCM LOS					D	
Minor Lane/Major Mvmt	1	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	'	149		-	716	1101
HCM Lane V/C Ratio		0.089	-		0.002	-
HCM Control Delay (s)		31.5	-		10	0
			-	-		
HCM Lane LOS		D	-	-	В	Α
HCM 95th %tile Q(veh)		0.3	-	-	0	-

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Vol, veh/h	4	828	19	11	578	8	13	1	6	3	0	1
Future Vol, veh/h	4	828	19	11	578	8	13	1	6	3	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage,	# -	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	5	963	22	13	672	9	17	1	8	4	0	1
Major/Minor Major/Minor	ajor1		ľ	Major2		ľ	Minor1		١	/linor2		
Conflicting Flow All	681	0	0	985	0	0	1687	1691	974	1692	1698	677
Stage 1	-	-	-	-	-	-	984	984	-	703	703	-
Stage 2	-	-	-	-	-	-	703	707	-	989	995	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	921	-	-	709	-	-	75	94	308	75	93	456
Stage 1	-	-	-	-	-	-	302	329	-	431	443	-
Stage 2	-	-	-	-	-	-	431	441	-	300	325	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	921	-	-	709	-	-	72	90	308	70	89	456
Mov Cap-2 Maneuver	-	-	-	-	-	-	72	90	-	70	89	-
Stage 1	-	-	-	-	-	-	298	325	-	426	430	-
Stage 2	-	-	-	-	-	-	417	428	-	288	321	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.2			57.1			48		
HCM LOS							F			Е		
Minor Lane/Major Mvmt	[NBLn1	EBL	EBT	EBR	WBL	WBT	WBR:	SBLn1			
Capacity (veh/h)		95	921	-	-	709	-	-	89			
HCM Lane V/C Ratio			0.005	-	-	0.018	-	-	0.06			
HCM Control Delay (s)		57.1	8.9	0	-	10.2	0	_	48			
HCM Lane LOS		F	A	A	-	В	A	-	E			
HCM 95th %tile Q(veh)		1	0	-	-	0.1	-	-	0.2			
			-			•						

Intersection	4.0											
Int Delay, s/veh	10											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Vol, veh/h	19	800	18	67	577	16	9	0	48	9	0	11
Future Vol, veh/h	19	800	18	67	577	16	9	0	48	9	0	11
Conflicting Peds, #/hr	0	0	0	304	0	0	0	0	0	0	0	0
ğ	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage,	# -	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	88	88	88	81	81	81	80	80	80
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	23	964	22	76	656	18	11	0	59	11	0	14
Major/Minor NA	nior1		, n	Major2		N	Minor1		N	/linor2		
	ajor1	0			0			2151			2152	4/5
Conflicting Flow All	674	0	0	1290	0	0	2149	2151	1279	1868	2153	665
Stage 1	-	-	-	-	-	-	1325	1325	-	817	817	-
Stage 2	11	-	-	- / 1	-	-	824	826	- 4 2	1051	1336	- 4 2
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5 5.5	-	6.1	5.5 5.5	-
Critical Hdwy Stg 2	2.2	-	-	2.2	-	-	3.5		3.3	3.5		3.3
Follow-up Hdwy	927	-		544	-	-	3.5	49	205	3.5 56	49	3.3 464
Pot Cap-1 Maneuver	921	-	-	344	-	-	194	227	205	373	393	404
Stage 1	-	-	-	-	-		370	389		277	224	
Stage 2 Platoon blocked, %	-	-	-	-	-	-	3/0	389	-	211	224	-
Mov Cap-1 Maneuver	927	-	-	406	-	-	19	24	153	25	24	464
Mov Cap-1 Maneuver	921	-	-	400	-	-	19	24	103	25	24	404
Stage 1	-	-	-	-	-	-	137	160	-	352	275	-
Stage 2	-	-	-	_	_	-	251	272	-	160	158	-
Stage Z	-	-	-	-	_	-	201	212	-	100	100	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			1.6			198.3			126.6		
HCM LOS							F			F		
Minor Lane/Major Mvmt	1	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR:	SBLn1			
Capacity (veh/h)		72	927			406			52			
HCM Lane V/C Ratio		0.977		_		0.188	_	_	0.481			
HCM Control Delay (s)		198.3	9	0	_	15.9	0		126.6			
HCM Lane LOS		F	Á	A	_	C	A	_	F			
HCM 95th %tile Q(veh)		5	0.1	-	-	0.7	-	-	1.8			
			J. 1			3.7			1.0			

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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		र्स	1>		W	
Traffic Volume (veh/h)	10	5	21	20	15	0
Future Volume (Veh/h)	10	5	21	20	15	0
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	5	23	22	16	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	66	32	32	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	66	32	32	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	99	99	97	98	99	
cM capacity (veh/h)	889	856	856	1091	1636	
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	16	45	16			
Volume Left	11	0	16			
Volume Right	0	22	0			
cSH	878	957	1636			
Volume to Capacity	0.02	0.05	0.01			
Queue Length 95th (ft)	1	4	1			
Control Delay (s)	9.2	8.9	7.2			
Lane LOS	А	А	А			
Approach Delay (s)	9.2	8.9	7.2			
Approach LOS	A	Α	_			
Intersection Summary						
Average Delay			8.6			
Intersection Capacity Utilizat	tion		17.5%	IC	III evel d	of Service
Analysis Period (min)			17.570		CECVOIC	// JOI VICO
miarysis r chou (IIIIII)			10			